

**DEFENSE ESSENTIALITY AND FOREIGN
ECONOMIC POLICY**

(CASE STUDY: THE WATCH INDUSTRY AND PRECISION SKILLS)

HEARINGS

BEFORE THE

SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

EIGHTY FOURTH CONGRESS

SECOND SESSION

PURSUANT TO

Sec. 5 (a) of Public Law 304, 79th Congress

**CASE STUDY: THE WATCH INDUSTRY AND PRECISION
SKILLS**

—————
JUNE 4, 5, 6, AND 7, 1956
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Printed for the use of the Joint Economic Committee



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DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

MONDAY, JUNE 4, 1956

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY,
JOINT ECONOMIC COMMITTEE,
Washington, D. C.

The subcommittee met, pursuant to call, at 9:40 a. m., in the District of Columbia Committee room, United States Capitol Building, Washington, D. C., Hon. Richard Bolling (chairman of the subcommittee) presiding.

Present: Representative Bolling, Senators Douglas and Flanders, and Representative Talle.

Also present: Representative Curtis;

Grover W. Ensley, executive director; John W. Lehman, clerk; and Charles S. Sheldon II, staff economist.

Representative BOLLING. The subcommittee will be in order.

In the next 4 days, the Subcommittee on Foreign Economic Policy will be meeting to consider aspects of the problems of restrictions on international trade proposed in the name of defense essentiality. We are aware that this is a complex subject, one which will take the closest study. Our reasons for understaking this investigation were set forth in detail in our press release of May 14, which with its revised list of intended witnesses will be placed in the record at the close of these opening remarks.

In brief, our hearings of last fall on foreign economic policy included some discussion of the defense essentiality concept, but the testimony was so contradictory that our report was forced to conclude this topic needed further study. Now that the Office of Defense Mobilization is rising to the same prominence in influencing trade policy as is the Tariff Commission itself, it seems appropriate for us to resume our previous studies of this problem. Any proper treatment of the questions is broader in scope than the jurisdiction of any single legislative committee, and we hope that those committees which will have occasion in the future to deal with the specifics of law will find in this record useful perspectives.

We are concerned basically with the broad issues of defense essentiality, and whether general criteria can be established which will guide policymaking on the part of the executive branch. These agencies, the Congress, businessmen who engage in trade or in manufacture, and the American public have a right to know what the rules of the game are to be. Indeed, our allies overseas should know, too, whether specific acts of our Government are part of a consistent policy, or are isolated measures. This subcommittee is not prepared as of this

moment to answer whether such criteria can be found or what the national interest in this matter is. But we are intensely curious about the intended application of the defense essentiality clause and we believe that it warrants study. This is not per se a review of the wisdom of legislation so recently passed by the Congress. But rather, we recognize that the law passed last year was symptomatic of a widespread trend toward emphasis of defense needs, overruling ordinary economic and business criteria for directing the economy through the workings of the market mechanism. This may be necessary in the troublesome times in which we live; or on the other hand, it may be an unwitting means for weakening us in meeting the real challenges we face. We intend to explore these questions.

Our selection of the watch industry is not intended to be a complete examination of the detailed aspects of their problems. Rather, it is to give us something to use by way of illustration of the general principles of defense essentiality. Watches were chosen because they have a long history of study by various agencies of the Government and the Congress, and they are now being reviewed in such a manner that whatever decisions are taken are likely to be precedent-determining, and will have repercussions far beyond the confines of that relatively small although key industry. We have taken watches for study because many very experienced and dedicated people believe they should be singled out for special treatment; while other equally sincere and dedicated people believe that the national security will actually be harmed by some of the proposed measures for relief of this domestic industry.

Whether this subcommittee will issue a report as a result of these hearings, it is too early to say. If a report is made, it will be with a full realization of the gravity of the issues at stake.

We wish there were time and opportunity for making as extensive and as intensive a study of all aspects of these problems and the individual industries involved as their importance deserves. This is out of the question at this time, although the occasion may present itself at a later date for continuing some phases of this investigation. We cannot now in these 4 days discuss all the specifics of oil imports, of scissors and shears, of card clothing, even of the pin-lever watch and the clock industry, or the many other possibilities which are open. Nor can we follow all the suggestions for study which segments of the watch industry have made to us. We can not repeat the work of the other congressional committees which have been concerned with international cartels. We cannot even listen to all the people who have something to say on the subject of watches. In these 4 days we have tried to be selective, and to find representative, divergent views. We have reserved time for questions and discussion with the witnesses who have been invited to appear.

The schedule of witnesses which is being placed in the record shows the general pattern of analysis which we intend to follow. The witnesses of this morning were chosen by the subcommittee to treat the general issues at stake. The next 2 days have been allocated to the 2 major opposing views of people concerned with watches, the importers and the domestic manufacturers. Not all witnesses on these days are necessarily associated with these two major groups. The main groups have relinquished some time to additional witnesses whose remarks would be useful to the record.

On Thursday we are hearing from an assorted group of industrialists and scientists who are concerned with problems of microprecision manufacture. Some of their names were suggested to us by each of the opposing groups in the watch industry, while others were of our own discovery. We think their discussion will be interesting. Finally, that afternoon, Dr. Arthur Flemming is going to speak for the executive branch of the Government on the issues of the hearings.

It will be of interest for the record that the subcommittee and its staff are not approaching these hearings without considerable background preparation. Testimony on the watch industry from previous hearings has been read and reread. Government reports and policy decisions have been studied. Informal discussions with officials in many agencies have been conducted. Industry sources have supplied us with written materials and have spent many long hours bringing their points of view to our attention.

Last week, the subcommittee met for a thorough briefing on the technicalities of watch construction and of Government policy development. The subcommittee also accepted the invitations of the Bulova Watch Co. to visit its facilities on Long Island, the Gruen Watch Co. to visit with its top officials in Manhattan, and the Eclipse-Pioneer division of Bendix Aviation Corp. at Teterboro, N. J., to inspect its factory, too. We are appreciative of the assistance all three organizations gave us either to see firsthand how close tolerance manufacture and miniaturization of military end products is accomplished, or to discuss the tremendous impact of the current technological revolution upon military planning and peacetime economics.

I will repeat each day of these hearings that the tightness of our scheduling will limit the time for the oral statements of each witness. We will hear from each with a minimum of interruption, and save our questions for the discussion period after all have been heard. All witnesses scheduled on a given day will be treated alike as to amount of time. Their full statements will be filed for the record.

That concludes my statement.

(The press release and list of witnesses are as follows:)

[Revised June 4, 1956, for morning release, Monday, May 14, 1956]

CONGRESS OF THE UNITED STATES, JOINT COMMITTEE ON THE ECONOMIC REPORT

SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY

Representative Richard Bolling (Democrat, Missouri) announced today that the Subcommittee on Foreign Economic Policy of which he is the chairman is continuing its study of commercial and trade policy with a review of the national-defense aspects of imports. Public hearings will be held in the first week of June to receive testimony from a selected and representative list of witnesses qualified by their experience or responsibilities to discuss problems of defense essentiality and their interaction with our foreign economic policy goals.

The other members of the subcommittee are: Senator Paul H. Douglas (Democrat, Illinois), Senator J. William Fulbright (Democrat, Arkansas), Senator Ralph E. Flanders (Republican, Vermont), Representative Henry O. Talle (Republican, Iowa).

There follows Mr. Bolling's statement outlining the reasons for the hearings and a copy of the list of witnesses with the dates of their appearance:

"The President, the Congress, and several governmental agencies have taken action in the past few years aimed at protecting certain domestic industries which claim that they face injurious import competition and which also claim that they are essential to the national security.

"The Congress, in the Trade Agreements Act of 1955, has given the Director of the Office of Defense Mobilization authority to determine whether there is reason to believe that imports are threatening the national security. If the Director so finds, he is to advise the President. If the President agrees, an investigation is to be made. If the President finds, on the basis of such investigation, the existence of such facts, he shall take such action as he deems necessary to adjust the imports of such articles to a level that will not threaten to impair the national security.

"The President previously had asked the Director of the Office of Defense Mobilization to make studies of the essentiality of certain industries to the national security.

"The Director of the Office of Defense Mobilization has come to play a vital role in foreign economic policy. Moreover, in carrying out the authority given him by the Congress and the President, the Director is establishing significant precedents for determining the essentiality of domestic industries to the national security. In fact, the Office of Defense Mobilization now has pending before it as many applications from industries seeking relief from import competition as there are applications for escape clause relief before the Tariff Commission which traditionally has been charged with the responsibility of determining whether domestic producers should be granted additional protection from import competition.

"In its report submitted to the full committee and transmitted to the Senate January 5, 1956 (Rept. No. 1312), the Subcommittee on Foreign Economic Policy pointed out:

"Further study is required of the whole concept of defense essentiality if it is not to dominate over other necessary factors in trade policy. Not only should impartial criteria be discovered, but the whole concept of the mobilization base in the light of evolving military strategy should be reviewed' (p. 31).

"The subcommittee indicated that during the coming year it planned 'to explore more thoroughly some of the problems raised * * * and include more specific analyses of individual situations than was possible * * * last year.

"The subcommittee believes that this is an appropriate time to take an objective look at the criteria being used by the several Government agencies which have a voice in determining defense essentiality of domestic industries.

"There has been considerable growth in the use of defense essentiality argument by domestic producers desiring restrictions on competitive imports. Further, it is reported in the press that there are conflicting views among Government personnel most closely associated with the determining of national security needs as to what legitimately constitutes defense essentiality.

"On April 5 the Director of the Office of Defense Mobilization announced the initiation of the first study to be undertaken under the authority of the Trade Agreements Act. This study is to be on the domestic watch and clock manufacturing industry and the first phase of the study will be limited to the jeweled movements segment of the watch industry. Initiations of action on several other applications by domestic producers have not been taken yet.

"The subcommittee stated in its report of last year:

"It is also evident that much greater study is required of the very concept of the mobilization base. There is question whether the present tests of defense essentiality reflect realistically the changing nature of war. If nuclear war comes, the suddenness of attack and the widespread destruction of industry both may militate against any orderly conversion of industry in accord with a previous plan. Only weapons in being, and a high level of skills and adaptability with wide dispersion of industry would offer much help' (p. 27).

"The subcommittee believes that if further confusion and serious conflict over our foreign economic policy is to be avoided that it is essential to have the executive departments having a voice in determining 'defense essentiality' review the criteria to be used for such determinations. Moreover, inasmuch as there is conflict over the criteria for determining defense essentiality, the real question arises as to whether Congress should not determine the standards and establish guide lines for the executive branch in their determination of the defense essentiality of industries claiming special preference in foreign economic policy matters by reason of their claimed essentiality to national security.

"Accordingly, the subcommittee plans to hold public hearings the week of June 4 to receive information from a selected and representative list of Government, business, and labor interests who will be invited to testify on matters bearing on the problem of defense essentiality.

"It is planned specifically to call upon the Office of Defense Mobilization, the Department of Defense, the Department of Commerce, the Department of Labor, the Treasury Department, and the Department of State for explanations of relevant issues. Also, watch manufacturers, watch importers, and certain industries which produce precision equipment will be invited to testify. Adequate representation of the labor groups involved will be provided.

"It is proposed that the subcommittee hold hearings in order that the executive departments may make clear their views as to:

"The criteria which are being used in determining defense essentially of domestic industries, in light of the requirements of the mobilization base.

"The extent to which such criteria take into account the needs and requirements of foreign economic policy and the relation of such requirements of foreign economic policy to the mobilization base.

"The advantages and disadvantages of the alternatives to import restrictions as a means of insuring the maintenance of domestic industries at levels sufficient to meet the needs of national security.

"This subcommittee's study is being made under authority of section 5 (a) of the Employment Act of 1946, which directs the Joint Economic Committee 'to make a continuing study of matters relating to the Economic Report' and 'to study means of coordinating programs in order to further the policy of this Act * * *'. It is hoped that the information obtained will be helpful to the legislative committees of the Congress."

CONGRESS OF THE UNITED STATES JOINT COMMITTEE ON THE ECONOMIC REPORT

SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY

SCHEDULE OF PUBLIC HEARINGS ON DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY¹

Monday, June 4, 1956, 9:30 a. m.

The interrelation of defense planning and foreign economic policy:

H. Struve Hensel, attorney, Washington, D. C., An interpretation of national security.

Harold J. Barnett, research economist, Silver Spring, Md., Military technology and economic programing.

Henry David, executive director, National Manpower Council, Columbia University, The development and utilization of skilled manpower.

Raymond Vernon, director, New York Metropolitan Regional Study, Foreign trade and national defense.

Percy W. Bidwell, director of studies, Council on Foreign Relations, New York, Background on the tariff history of the watch industry.

Tuesday, June 5, 1956, 9:30 a. m.

The problems of the watch industry related to defense essentiality and foreign economic policy:

Samuel W. Anderson, president, American Watch Association, Washington, D. C.

S. Ralph Lazrus, president, Benrus Watch Co., New York.

M. Fred Cartoun, chairman of the board, Longines-Wittnauer Watch Co., New York.

Wednesday, June 6, 1956, 9:30 a. m.

The problems of the watch industry related to defense essentiality and foreign economic policy (continued):

Arde Bulova, chairman of the board, Bulova Watch Co., New York.

Omar Bradley, chairman of the board, Bulova Research and Development Laboratories, New York.

William H. McMorro, president, Waltham Watch Co., Waltham, Mass.

Leroy A. Mote, secretary and counsel, Elgin National Watch Co., Elgin, Ill.

¹ When witnesses have classified security information to present, executive sessions will be scheduled to protect its confidential nature.

Arthur B. Sinkler, president and chairman of the board, Hamilton Watch Co., Lancaster, Pa.

Walter W. Cenerazzo, president, American Watch Workers Union, Somerville, Mass.

Albert L. Reeves, general counsel, Clock and Watch Manufacturers Association of America, Washington, D. C.

Thursday, June 7, 1956, 10 a. m.

Alternate sources for microprecision goods important to defense:

C. Harry Kalquist, vice president and treasurer, Moser Jewel Co., Perth Amboy, N. J.

Charles S. Draper, head of Instrumentation Laboratories, Massachusetts Institute of Technology.

Duncan E. Macdonald, dean of the Graduate School, Boston University.

Jacob H. Gichner, mechanical engineer, Washington, D. C.

William L. Batt, formerly president, S. K. F. Industries, Philadelphia.

Thursday, June 7, 1956, 2 p. m.

Review of answers to questions addressed to the executive branch relating to the problems of defense essentiality and foreign economic policy:

Written reports from: Department of Commerce, Department of Defense, Department of Labor, Department of State, Department of the Treasury, Office of Defense Mobilization.

Oral report from: Arthur S. Flemming, Director, Office of Defense Mobilization; representatives of other agencies as required.

Representative BOLLING. Dr. Talle, do you wish to say anything at this point?

Representative TALLE. No, thank you, Mr. Chairman.

Representative BOLLING. First this morning, we are to hear from the distinguished former Assistant Secretary of Defense, Mr. H. Struve Hensel. He has had unique experiences in Government which qualify him for public expression on the issues before us. He was concerned with procurement matters for the Navy in World War II, has served as a consultant to the National Security Resources Board and the ECA. After being General Counsel for the Department of Defense, he was the Assistant Secretary for International Security Affairs.

Mr. Hensel, we are very happy to have you with us today.

Mr. FOWLER. I am Henry H. Fowler. I am here as counsel for Bulova Watch Co. I think it is appropriate at this time if I may inquire whether the chairman has come to any decisions about including the exchange of letters between—

Representative BOLLING. Yes.

Mr. FOWLER (continuing). Between him and the—

Representative BOLLING. Yes; that was intended to be communicated to you as soon as possible. I intended to include that correspondence on the day your witnesses will appear.

Mr. Hensel?

Mr. FOWLER. I think it would be more appropriate, in view of the request that was made here to have witnesses on cartels here the first day, and that is why I suggest it would be more appropriate to present that today.

Representative BOLLING. I will consult with the other members of the subcommittee about it. The tentative decision is for them to appear in what seems the appropriate place.

Before Mr. Hensel proceeds, and without any criticism of Mr. Fowler, it would be helpful to the committee in the future, if there are

problems to be taken up, for them to be brought to our attention before the hearings actually get underway.

Mr. Hensel?

STATEMENT OF H. STRUVE HENSEL, FORMER ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY AFFAIRS

Mr. HENSEL. Mr. Chairman, I have filed a prepared statement which I assume I do not need to read.

Representative BOLLING. Correct. Proceed as you wish.

Mr. HENSEL. I may proceed informally with you, although my remarks will be based on that statement.

Representative BOLLING. Proceed.

Mr. HENSEL. I was particularly impressed as you read your opening statement, with the nature of the inquiry: That first of all, we are dealing with the problem of the essentiality of industry to national security.

The No. 1 question, it seems to me, for us to determine, is what is meant by national security, how broad, how narrow it is. From my experience, I think that too often national security has been thought to be more or less the same as continental defense, whereas national security is much broader in its scope. I believe that the national security of the United States rests on the collective military, psychological, economic, and spiritual strength of the free world, this country and its allies.

You will recall that President Eisenhower dealt with that problem, and I would just like to make a very short quotation from his message in regard to H. R. 1. I am quoting:

From the military standpoint, our national strength has been augmented by the overall military alliance of the nations constituting the free world. This free world alliance will be most firmly cemented when its association is based on flourishing mutual trade as well as common ideals, interests, and aspirations. Mutually advantageous trade relationships are not only profitable but they are also more binding and more enduring than costly grants and other forms of aid.

The national security, I believe, is not only broader than continental defense, but it is much broader than just military force and the support of military force.

As we well know, the cold war, or competitive coexistence, call it what you will, has taken a new turn. Until recently we have been faced with Communist drives through subversion, revolution, and military action; and we are now being faced with a concentrated, well-directed Communist drive to win away members of the free world and uncommitted nations through economic pressures and economic cooperation. The Communists are getting into an aggressive conflict with the United States in that field. I assume I need not point out any instances to prove that. The present ventures in Egypt, India, and Afghanistan, indicate that the Soviet is well aware of the possibilities of conquest through economic penetration.

So I think in support of our national security, we must recognize the fact that we need allies, we need them tied as closely as possible to us. The stronger they are economically and militarily, the better; but, weak or strong, they must be tied securely to us.

I need not dwell too long on the fact that alliances have been a part of our foreign policy, perhaps the foundation of our policy,

through two administrations, Democrat and Republican. You all know that we have made many important alliances: The North Atlantic Treaty, Southeast Asia Treaty, the Rio Pact, and others. We have covered the world with a system of multilateral and bilateral alliances. And the mere signing of pieces of paper does not make an alliance; you have to work at them, you must create a community of interest.

So, as I see it, our foreign economic policy, within this field of national security, must harmonize two objectives which often appear to conflict: On the one hand, the United States must preserve and nourish a strong industrial base to support its military forces. The factories and the human skills which product munitions and other war materials are the keystones of that industrial base, but we need more than keystones.

Our entire domestic economy must be kept vigorous and progressive. I think we can say that the comprehensive economic well-being of our Nation as a whole, and the overall productive capacity of the United States, are clearly the strongest pillars upon which the military and economic strength of the free world now rest and will rest for many years to come.

At the same time, there is another side of the coin, and a new military need has come to the forefront and must be given its proper weight in our analysis in planning for the future. That is our need for allies and the need to take steps necessary to attract and hold those allies.

In spite of our tremendous strength, both current and potential, it is obvious that a policy based on isolationist concepts is doomed to failure. We do not possess within our boundaries all of the raw materials we need. Our manpower resources are not unlimited. We need bases overseas, and we need the skills and craftsmanship and know-how of the highly industrialized European countries that are now on our side.

As I mentioned in the beginning, the claim of defense essentiality on the part of domestic producers, particularly in the tariff field, is generally limited to continental defense. They are talking always about the importance of maintaining a military base here, and they do not weigh what I feel must be weighed on the other side, and that is the importance of keeping our alliances firm and strong.

You are fully aware of the wide claims for defense essentiality which have been made. I went through all of the briefs which had been filed with the Ways and Means Committee and some with the Tariff Commission around the time of the consideration of H. R. 1. Defense essentiality was claimed for clothespins, dehydrated garlic, as well as some of the more important things, like lenses and aluminum foil.

Senator DOUGLAS. Mr. Hensel, are those briefs on the defense essentiality of clothespins and dehydrated garlic classified?

Mr. HENSEL. Oh, no, they are filed with the Ways and Means Committee here, with Congress.

Senator DOUGLAS. I would like to see those. They are very interesting.

Mr. HENSEL. You will find they were filed in connection with a questionnaire, which, I believe, that was sent out by the Ways and Means Committee at the time of consideration of H. R. 1—I am

sure your staff can get these briefs very easily—there are about 40 or 50 of them.

With that background, I would like to suggest some considerations for applying the standards of essentiality to national security.

Of course, the No. 1 question is: Is the industry in question really essential; do we need the items? Are they so unique that they cannot be otherwise manufactured for military purposes, and are equivalent skills and facilities available elsewhere?

Then, if it is determined that the industry is not essential within the scope of that inquiry, you do not have to go any further. If, however, it is deemed essential, then you move on. The next question is: Will the trade restrictions that are proposed really help the industry concerned and strengthen our mobilization base?

Then, again, if that answer is in the affirmative, you move on to the next question: What will be the effect of an import curb on our agricultural, industrial exports, particularly on the technologically strong industries which have developed substantial overseas markets?

And then, next, are there any alternatives? If you come to the conclusion that there are no other alternatives and that the industry is essential, then you must turn and look at what will be the effect of the steps we plan to take on our alliances. You will have to balance the disadvantage to an alliance with the advantage to the industry or to the mobilization base within the United States.

I believe if you fail to consider both of those factors in all of their details, you have failed to deal with national security and are dealing with an isolationist concept well within continental defense terminology and not within national security.

I am not able to speak of the watch industry or of any particular industry. I believe that, if we can get an agreement on the principles to be applied, the details and the facts of each industry can be studied within the framework of those principles and that line of inquiry. Then, the experts can come to solid conclusions.

I do not want to give the impression that I think we can just throw our industrial mobilization base wide open to unrestricted import competition. I can well imagine the situation where we have to take exceptional action to protect an industry or a group of industries that we feel are important to national security in the broad sense. I can imagine instances where we will say we must suffer a certain amount of damage to our alliances because the industry is so important. I think those cases will be few, and I think they should be left to the most careful investigation.

There I have given you what I believe is a set of criteria and an approach to the problem which covers national security in its broader aspects.

Representative BOLLING. Thank you very much, Mr. Hensel.
(Mr. Hensel's prepared statement is as follows:)

STATEMENT OF MR. H. STRUVE HENSEL

My name is H. Struve Hensel. I now am engaged in the practice of law in Washington. I appreciate the opportunity of discussing with you the contribution that United States foreign economic policy can make to achieving our total national goals—economic, political, and military.

I have been privileged to serve the Government at various times during the past 15 years in capacities that have enabled me to gain some familiarity with national security problems, particularly as they relate to both foreign economic policy and military policy.

With the outbreak of World War II, I was asked to organize the Procurement Legal Division of the United States Navy, and I handled all legal aspects of Navy procurement contracts between 1941 and 1944. Later I was General Counsel of the Navy Department under Secretary Forrestal, Assistant Secretary of the Navy between 1945 and 1946, and General Counsel of the Defense Department from 1952 to 1954. As Assistant Secretary of Defense for International Security Affairs in 1954 and 1955, I was associated with activities within the Department relating to mutual defense assistance programs, North Atlantic Treaty affairs, National Security Council actions, and other similar political and military matters. My office also had responsibility for the development and coordination of Department of Defense policies pertaining to economic aspects of foreign military affairs.

My experience in Government has led me to a strong conviction with respect to national security—a conviction which I believe is shared by both Republicans and Democrats and is inherent in our basic foreign policy. I firmly believe that the national security of the United States rests as much upon the collective military, psychological, economic, and spiritual strength of the free world as much as it does on our own continental defenses. As President Eisenhower so succinctly stated: "From the military standpoint, our national strength has been augmented by the overall military alliance of the nations constituting the free world. This free world alliance will be most firmly cemented when its association is based on flourishing mutual trade as well as common ideals, interests, and aspirations. Mutually advantageous trade relationships are not only profitable but they are also more binding and more enduring than costly grants and other forms of aid."

The cold war has recently taken a new turn. Until recently communism had sought to dominate the world through subversion, revolution, and military action by its satellites. The Russians are now attempting to demonstrate to the free peoples of the world that economic cooperation with the Soviet is an effective method for achieving material gains. The Communists are waging an aggressive, coordinated attack on the leadership of America and the unity of the free world. Their economic ventures in Egypt, India, and Afghanistan indicate an increased awareness of the conquest possibilities in economic penetration. Their goal is to entice neutralist countries and the uncommitted peoples into their orbit, to weaken the alliances which exist between the United States and its allies, and to break the mutuality of economic interest of the major trading nations of the free world.

This cold war—this competitive economic contest—is just as total and global as any hot war. That fact, however, is not always recognized. We are only vaguely aware of the struggle between the free world and its aggressive enemies. It does not absorb our intimate thinking or influence our daily lives as did the struggle in World War II. Yet it is an equally serious fight for survival. The stakes are just as high. Our enemies are patient, determined, and resourceful. Their basic intention is our destruction.

To be militarily sound, our foreign economic policy must harmonize two objectives which often appear to conflict. On the one hand, the United States must preserve and nourish a strong industrial base to support our military forces. The factories and human skills which produce munitions and other war materials are the keystones of that industrial base. The structure, however, needs more than keystones. Our entire domestic economy must be kept vigorous and progressive. The comprehensive economic well-being of our Nation as a whole and the overall productive capacity of these United States are clearly the strongest pillars upon which the military and economic strength of the free world now rests and will rest for many years to come.

At the same time there is another side to the coin. A new military need has come to the forefront and must be given its proper weight in our analysis and planning for the future. The United States needs allies and must be prepared to take whatever steps are necessary to attract and hold allies. In spite of our tremendous strength—current and potential—it is obvious that a policy based on isolationist concepts is doomed to failure. We do not possess within our boundaries all of the raw materials we need. Our manpower resources are not unlimited. We also need the skills and craftsmanship and know-how of highly industrialized European countries on our side.

Geographically, we are an island country. Offshore bases and resources are protective essentials. The fortress America concept is acceptable only as a desperate last stand.

We need allies tied as closely as possible to us. The stronger our allies become economically and militarily, the better. But of equal importance is the fact that weak or strong, our allies must be tied securely to us. The problem we face today is to find the ways and means of accomplishing that result in the face of Communist attempts to weaken such ties.

The globe is now divided into two camps—the free world and the Communists. In between, there is a void. Every nation, no matter how small, which joins the Communist camp or falls away from the free world strengthens our enemies and weakens us. We need the collective and firmly united strength of all and I emphasize “all”—the current and prospective members of the free world.

We have made important alliances—the North Atlantic Treaty, the Southeast Asia Treaty and others. We will probably make more. Yet the formulation and signing of alliances are only a beginning. Nations do not become bound together by the agreements of statesmen or the signing of pieces of paper, no matter how firmly the agreements may be expressed. There must be created a community of interests. There must be found compelling reasons for the Allies to stay together. Otherwise, the treaty or alliance is only a source of disappointment and perhaps friction.

Mutual trade is obviously the most lasting and binding cement for alliances.

Communist capabilities for economic warfare are many, and geographic closeness is a ready asset for economic penetration.

I should like to mention a few of these Communist activities, for sake of emphasis. At the recent Damascus trade fair, the steel and aluminum exhibits for the Russians surprised technicians from other countries and created considerable interest among prospective buyers. The Russians displayed threadings and couplings for oil-well pipes which it had been thought could be produced only by certain American and Western European firms. Many of the Communist machine tools equaled Western European products in quality, and some were far cheaper in price. Press reports from the Middle East tell of Soviet and satellite trade missions “swarming” through Arab countries, underbidding western firms on all sorts of projects of local importance.

Russian steel is being exported to Finland. Many Finnish merchants and businessmen are being invited to visit Russia on an all-expense-paid basis. Cement from the Soviet zone in Germany has become a real competitor of West German cement in certain markets. India has accepted a Soviet offer to send Russian steel exports to India to erect a new steel plant of around 1 million-ton capacity. Moreover, the Kremlin’s roving Ambassadors, B and K, have recently sought diligently to woo western nations into closer trade relations with the Soviet Union.

Russia’s threat to the collective economic strength of the free world makes it more important than ever to look at our total national security—not from the viewpoint of preserving any single facility or any one productive activity—but in the larger aspect of building a total mobilization base throughout the entire western community.

Frankly, I have been distressed by the increasing resort to the claim of defense essentiality on the part of domestic producers seeking tariff protection against import competition. In modern war, nearly every item produced, nearly every service rendered and nearly every skill or aptitude has some potential military or essential civilian use. If we were to seek protection for all the industries that seek to justify trade restrictions on the grounds of defense essentially, we would have to shrink our total level of import trade substantially. This would automatically reduce our export markets. In effect, we would be cutting our political ties with our allies, retreating into an isolationist fortress, while leaving our friends abroad exposed to Soviet pressures.

The number of industries that have appealed for increased tariff walls or quotas, claiming their products have strategic importance, is increasing. They range from clothespins and dehydrated garlic to lenses, aluminum foil, silk textiles and oil. And the tendency of even secondary industries to wrap themselves in the American flag, trying to join more vital industries in this drive for protectionism under the guise of national defense, is becoming more marked, as witness the briefs filed with the Ways and Means Committee and the Tariff Commission.

It is true that as the nature of war has shifted, we are required to pay increased attention in peacetime to potential wartime needs. However, the concept of national defense which has hitherto been advanced as a justification for import curbs is no longer realistic. It reflects neither the nature of modern nuclear war nor the character of the contest with the Soviets.

If nuclear war comes, the attack will be sudden, bringing widespread industrial destruction. We can no longer place our faith, as we have in all past wars, upon having time to produce military items after the conflict has started. Obviously, today there is a greater need for weapons in being, as contrasted with the standby industrial capacity which is envisaged in the mobilization base concept.

As long as erroneous concepts of defense essentiality dominate our thinking in the application of our international trade policies, we will never be able to exercise our position of world economic leadership in our effort to counter the current Soviet threat. Defense essentiality—i. e., efforts to preserve individual domestic industries—is no substitute for true national security, mobilizing ourselves and the free world against the Soviets.

The most serious gap that exists in the administration of our reciprocal-trade program is the lack of specific, objective criteria for determining whether it is in the interest of total national security to protect a domestic industry from import competition.

I should like to suggest some considerations for applying standards when the Government is considering the imposition of trade restrictions on grounds of defense essentiality:

1. Is the industry in question really essential?

Are the items they produce so unique that they cannot be manufactured by other firms? Are equivalent skills and facilities available elsewhere within the vast industrial structure of the United States? Can the products be acquired elsewhere in the Western Hemisphere?

2. Will trade restrictions really help the industry concerned and strengthen the mobilization base?

Will it make the industry truly competitive, thereby providing a stimulus to an improvement in production methods or will it inhibit inventiveness and research? Is it compatible with the need to keep the economy dynamic, growing, changing and competitive?

Dislocations occur every day as a result of shifts in consumer taste, technological changes, merchandising practices, and other factors which are the part of a normal economic process. Industries are frequently almost completely wiped out due to normal dislocations. It seems appropriate to inquire whether protection from foreign competition will provide the real answer since the decline of a domestic industry may be due fundamentally, not to import competition, but a failure to match changing consumer demands.

In this connection, it may be appropriate to ask: Has the industry in question merely lost a relative share of the market without suffering an absolute decline in employment and total production? This suggests the question of whether the Government has an obligation to protect an industry simply because it is not experiencing the expansion it would like to have.

3. What will be the effect of an import curb on our agricultural and industrial exports, particularly on the technologically strong and innovating industries which have developed substantial overseas markets?

It is generally the weak industries which seek restrictions because of their inability to meet competition or because they lag in modern production methods and techniques. In view of the fact that we have a buoyant economy and a vigorous technology, the question arises as to whether a trade restriction may serve only to hamper our exports and thereby contract economic opportunities both at home and abroad.

4. Are there any alternatives to trade restrictions that offer less obnoxious ways for strengthening the mobilization base?

From the standpoint of total national security, trade restrictions are a most unsatisfactory solution to aiding an important domestic industry. Trade barriers should be imposed only if there are no possible alternatives, such as direct forms of assistance.

And after such criteria have been applied, we must weigh the cost of such an import restriction on our alliances. We must ask whether we would be

breaking the principle of collective free-world strength based upon collective economic strength.

It is an error to consider only the country at which the restriction is directed. A most important consideration is the effect which the trade restriction would have on that country's trade with third countries. The fundamental question we should always keep in mind is: Can we risk distorting the free-world economy by erecting defense tariff walls?

Perhaps this committee and other committees of Congress should explore for the guidance of the executive branch the requirements of the mobilization base on the one hand and the requirements of our position of world leadership on the other.

I do not want to give the impression that our industrial mobilization base can be exposed to unrestricted import competition. Admittedly, a situation could conceivably arise when the United States feels it necessary to take exceptional action to protect a domestic industry in order to strengthen the mobilization base. However, in so doing, the Government should weigh carefully the cost to our leadership of the free world and should give heed to repercussions that would ensue in our international trade relations.

We should never forget that because the United States is the dominant economic force in world trade, an import curb on any one item results in far greater damage to the economy of the exporting country than any overall conceivable benefit to the United States economy. For example, current investigations under the escape clause sought by domestic producers as a prelude to higher tariffs or other trade barriers involve 68 percent of Icelandic exports to the United States, 44 percent of Yugoslav exports to United States and 37 percent of Swiss exports to United States. Thus, our policies have profound effects throughout the world.

Unilateral action by the United States boosting duty rates or imposing other import curbs creates doubt abroad as to intentions of the United States and weakens world progress toward expanded trade. Foreign businessmen hesitate to increase their plant capacity in anticipation of larger export markets, if the United States, the leading trading Nation, is quick to shut off import competition.

Higher tariff rates or quotas are not beneficial to the overall national interest. We need allies to fight the cold war in which we are now engaged and any hot war which may follow. We should weigh more precisely the relative advantages of establishing mutual economic interests with our friends abroad against the possible detriment to certain segments of our domestic economy. We are seeking a firm global foundation for our military strength. We must be more willing to accept some particular domestic disadvantages to gain strong and faithful allies in that effort. On balance, the Nation will gain.

The subject of foreign trade relations in all of its details, with its intricate interlocking relationships, admittedly is complicated. On the other hand, it is not too difficult to appreciate the basic necessity of linking our proper foreign economic policy to the attainment of overall national security.

We cannot limit our attention to any one aspect of the problem. Our solutions will have to be overall solutions—countrywide solutions which consider our national security as well as our domestic economy. There will always be a long list of advantages and disadvantages. The experts must compute the best and most acceptable balance in the national interest. Individual injuries often will be offset by individual benefits, but above all, we must sustain and improve our national security position in this cold war.

I have every confidence that if our people, our industrial managers and our workers truly understand the broad national security objectives for which our Government is striving, they will be willing to subordinate temporary individual difficulties to the overall national good.

Senator FLANDERS. Mr. Chairman, I regret my lateness. My train was late. The taxi situation was confused.

Representative BOLLING. And we had an inconvenient hour.

Senator FLANDERS. We had an inconvenient hour, and my office needed to get going for today. It took me awhile to find this room.

Senator DOUGLAS. Mr. Chairman, I ask that the excuse of the Senator from Vermont be accepted. [Laughter.]

Representative TALLE. Mr. Chairman, may I say that the appearance of the Senator from Vermont is always a delight, whenever it may be.

Senator FLANDERS. May I add for the benefit of those not familiar with parliamentary procedure, that the complimenting of one Senator by the other is fairly frequent.

Senator DOUGLAS. It is given with the lively expectation of reciprocity. [Laughter.]

Representative BOLLING. Senator, we just heard our first witness on this panel, Mr. Hensel, and I wondered if you had a statement you would like to make, or if you would like to have a statement which would be included at the beginning of the proceedings.

Senator FLANDERS. I did have a statement I wanted to make, because I felt it was important to put on the record something with regard to the relationship of this joint committee to the standing committees of the House and Senate, a thing which is not always clearly understood.

I am pleased to be taking part in these hearings on defense essentiality and foreign economic policy. Our subcommittee started these studies last year, and the present hearings, which are looking both into general principles and into problems of the watch industry, are well chosen to carry forward this work.

Our subcommittee by unanimous vote decided upon the present approach to the problems being examined this week. As a member of both the Senate Finance Committee and the Senate Armed Services Committee, I am conscious that we are concerning ourselves with problems which also are of interest to those committees. But the Joint Economic Committee has a certain advantage over most of the legislative committees, in that it is freed from the detailed writing of statutes, and has the authority to conduct these very broad studies which cut across the lines of many other committees. It also affords an opportunity for Members of the Senate and the House to share in discussions and to hear testimony concurrently. Few other places is it possible to view in deep perspective problems with so many important elements of the Nation's growth and destiny.

The problems of defense essentiality as they are entering into trade policy afford an excellent example of the interweaving of economics, business practices, Government fiscal policy, foreign relations, and national security. Except in a forum such as this, it would be hard to find a committee with the jurisdiction and the facilities to look at these problems in all their aspects.

I personally am particularly pleased that we have chosen the watch industry, as it is one with which I had some familiarity more than 50 years ago now, owing to a considerable time spent at the Waltham Watch Works when I was a young man, when that work was under the charge, in all of its production aspects, of a marvelous mechanic, Mr. Church. I forget what his first name was. Automation was born there, and I am sure that at that time, at that place, there was no watchmaker in the country or in the world who could have beaten them in production costs. As to what has happened to them since, it is a sad story.

I want to emphasize that this subcommittee is interested in following a nonpartisan approach to these hearings. The issues are far too

serious for the national welfare for the goal to be anything other than an attempt to seek facts and to bring understanding to the Congress and the public of the problems involved.

Thank you, Mr. Chairman.

Representative BOLLING. Thank you, Senator Flanders.

Our next witness is Dr. Harold J. Barnett of this city. Dr. Barnett took his doctor's degree at Harvard University. During various periods of Government employment or consulting relations, he has been associated with the Departments of State, Interior, Treasury, and Defense, and with a number of agencies in the Executive Offices of the President. His background in war economics dates from World War II when, as a member of the Armed Forces during 1942-45, he was concerned with economic analysis of enemy countries and strategic target selection. In 1944, he also assisted the United States Strategic Bombing Survey during its formative period. Since World War II he has, in addition to direct work for the Government, taught war economics at the university level, been associated with defense contractors, and engaged in private economic research and education on economic growth history and projections. Dr. Barnett's appearance here, of course, is as a private individual, expressing his personal views, at the committee's invitation.

We are pleased to have you with us, sir, and you may proceed as you wish.

**STATEMENT OF DR. HAROLD J. BARNETT, RESEARCH ECONOMIST,
SILVER SPRING, MD.**

Dr. BARNETT. Thank you. I considered it an honor to receive the staff's invitation, which I did not solicit or prompt in any way, to make a short statement on the implications of present military technology for economic preparations for war, and for specific industry essentiality.

Before starting my statement, I present for the record a research paper by Charles Hitch, titled "Domestic Economic Policies for National Security," which was prepared for the Committee for Economic Development a year ago. It is presented with the author's, CED's, and your staff's permission.

(The document referred to is as follows:)

DOMESTIC ECONOMIC POLICIES FOR NATIONAL SECURITY¹

Charles Hitch

Prepared for Committee for Economic Development, as revised June 3, 1955

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¹This paper was prepared by Mr. Hitch for use in the research program of the Committee for Economic Development. It has not been passed upon by the Committee for Economic Development and does not necessarily reflect the views of the committee.

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DOMESTIC ECONOMIC POLICIES FOR NATIONAL SECURITY²

I. THE BACKGROUND

During the last 10 years the development and accumulation of nuclear weapons, first by the United States and then by the U. S. S. R. have revolutionized the problem of United States security. No comparable technological revolution in weapons has ever occurred in history. The analogy of gunpowder is frequently suggested, but the substitution of gunpowder took place gradually over a period of centuries; and, like the weapons it replaced, gunpowder was used almost exclusively in a circumscribed area known as the battlefield. Nuclear weapons, a few years after their invention, have made it feasible—indeed, cheap and easy—to destroy economies and populations. They will not necessarily, of course, be used for this purpose; but the fact that they can be profoundly influences the character of the security which is attainable, as well as the policies by which we must seek it. No nation, including the United States, can hope in the future to assure its national security by allocation of economic resources. Today, or next year, or within 10 years, each of several nations can unilaterally destroy the major cities of other nations; the latter, if they are prepared and respond quickly, can make the destruction mutual. In these circumstances, problems which once dominated our thinking about defense become unimportant. And while other problems assume new importance, we have scarcely had time to learn what they are, let alone how to think about them.

The main body of this paper will reexamine our domestic economic policies for national security in the new weapons environment. Because the weapons environment critically influences choice of policy, this introductory section will first, as background, describe and project the weapons developments themselves, and then attempt to trace the implications of the developments for the kinds of war which our policies should be designed to prepare for, or prevent.

A. Weapons Developments: Nuclear

Enough is known concerning nuclear weapon development and production—both here and in the U. S. S. R.—for a general consideration of medium and long-term economic policies. For this purpose we can collapse the next decade or so to the present point in time. It does not matter whether the United States has x , $2x$, or $10x$ bombs; or whether the U. S. S. R. has sufficient thermonuclear weapons for all major United States cities now, or not until 1960. The significant facts are plain enough to informed public opinion throughout the world. They might be summarized as follows:

1. The number of urban centers which account for the economic war potential of a major military power like the United States or the U. S. S. R. is small—certainly not more than a few hundred. Fifty-four United States metropolitan areas contain 60 percent of the Nation's manufacturing industry; their population of more than 65 million, while only 40 percent of the national total, includes much larger proportions of many highly skilled technical, scientific, and managerial categories. The 170 metropolitan areas listed by the Census Bureau contain

² I am indebted to several of my colleagues at RAND for suggestions and criticisms, including H. J. Barnett, J. Hirschleifer, M. W. Hogg, B. H. Klein, R. N. McKean, and K. T. Nichols. However, the opinions expressed are my own.

75 percent of manufacturing industry and 55 percent of the Nation's population.³ The concentration of industry in Russian urban centers appears to be roughly the same as in the United States, although the centers themselves tend to be more compact and therefore easier targets. While the concentration of total Russian population is less (half live on farms), the concentration of industrial and skilled labor and management is at least as great.

The elimination of less than 200 metropolitan areas in either country would therefore, as a direct effect, reduce industrial capital by three-quarters and the most valuable human resources by about as much. This, in itself, would demote a first-class power to third class; but to the direct effects must be added indirect ones. The interdependence characteristic of a modern industrial economy would degrade, perhaps disastrously, the productivity of the surviving unbalanced economic resources. Radioactive fallout would be likely to inflict serious casualties on populations outside the target cities.

2. How many bombs would be required to "eliminate" a metropolitan area? It depends, of course, upon the size and shape of the area and the size of the bomb as well as upon other factors. But we were told by the Chairman of the Atomic Energy Commission after last year's test in the Pacific that a thermonuclear explosion could destroy any city on earth.⁴ We know that very much smaller bombs will destroy small cities, as the first primitive 20-kiloton atomic bomb destroyed Hiroshima, a city of 250,000, killing a third of its population; that thermonuclear weapons have been made in the megaton "yield" range; and that the area of destruction from blast increases as the two-thirds power of the yield (thus, a 10-megaton bomb would devastate an area approximately 60 times as great as a 20-kiloton bomb). We have also now been told that the area of intense radioactive fallout from the Bikini shot was 7,000 square miles—i. e., 15 times larger than Los Angeles and about one four-hundredth the total land area of the continental United States. We are clearly entering a 1-bomb-to-1-large-city era, which means usually 1, perhaps occasionally 2 or 3, bombs per metropolitan area. Total bomb-on-target requirements for an economic war potential target system appear to be in the low hundreds, even allowing some to be assigned to economic targets outside cities.⁵ The number of bombs that would have to be dispatched against a very effective air defense might be several times the number required on target—but we are told that no highly effective air defense is in existence and, as we shall see in the next section, it is questionable how effective air defense can be made against surprise attack.

3. Whether or not we or the U. S. S. R. now possess more than the critical hundreds of bombs (we have set off over 50 in tests) or bombs of the requisite high yields is not particularly relevant. What is of central importance—and, incidentally, readily apparent—is that inevitably both the United States and the U. S. S. R. will have nuclear weapons adequate in numbers, sizes and types. In this context "inevitably" means not a few decades but rather, at most a few years—one hopes not less than the time required to effect some rather major changes in our economic policies which will be discussed later in this paper.

4. While Russian weapon technology and the U. S. S. R. nuclear stockpile presumably lag several years behind ours, it would be rash indeed to expect either lag to widen. As to technology, the Russians quite possibly have a larger proportion (perhaps even a larger number) of their first-rate physicists working on their program than the United States has had in its program. As to stockpiles, increases in production rates on both sides depend mainly on a willingness to invest in additional productive capacity. No one believes any longer that some crucial specific resource shortage like uranium ore will conveniently (for us) inhibit U. S. S. R. production. The proportion of U. S. S. R. productive capacity required by a nuclear weapon production program comparable in scale to ours is small—perhaps 2 percent of Russian national product. (Judging from budget figures, ours has taken on the order of one-half of 1 percent of

³ The metropolitan area concept as defined by the Census Bureau is, unfortunately, not a perfectly satisfactory measure of urbanization—because its definition is primarily on a county-unit basis. The figures above include, therefore, some capital and population which may be sufficiently far from presumed city targets as not to be vulnerable to the direct effects of urban bombing, except fallout. On the other hand, the arbitrary legal boundaries of cities are much too restricted and even less satisfactory for our purposes.

⁴ New York Times, April 1, 1954. Mr. Strauss was not using "destroy" in a literal physical sense, and he was undoubtedly implicitly assuming no large-scale, expensive passive defense measures of the type discussed in sec. III-C below to reduce vulnerability.

⁵ Bomb-on-target requirements for dispersed military targets may, of course, be orders of magnitude greater.

United States national product for several years.) The U. S. S. R. is compelled by the strongest of motives to match the United States program; it has not hesitated in the past to undertake massive capital investment programs (e. g., in steel) where the potential security payoff was much less.

B. Weapons developments: Offense versus defense

Here, as with nuclear developments, enough is known to satisfy our limited purposes.

1. Responsible officials of the Air Force and of the Continental Air Defense Command have told us repeatedly that at present we could expect to shoot down at best about one-third of an attacking force before it reaches target, and that under some, not too unlikely, circumstances of surprise attack, we would not do nearly as well. We have no reason to believe that the Russians are any better prepared to cope with our attack.

2. While the defenses can undoubtedly be vastly improved over the next few years, the offense is likely to improve concomitantly. In the course of time there may be developed long-range missiles, similar to the 3,000 mile per hour V-2 rocket with which the Germans attacked London in 1944, which will be invulnerable to all air-defense techniques now known to us.

3. The game is loaded against the defense when small-scale (by World War II standards) sudden attacks can cause catastrophic, irreparable damage.

4. The superiority of the offense does not necessarily imply that either side can eliminate the enemy's ability to retaliate in force; still less that either side can guarantee such elimination. A strategic bombing force is much easier to protect by active and passive measures and by mobility and concealment than are economic and population targets. Moreover, the development of thermonuclear weapons by greatly reducing the number of bombs on target required to cause massive damage to economic and population targets, has enhanced the retaliatory capability of whatever portion of one's bomber force manages to escape surprise enemy attack. Unless the attacker achieves something like 100 percent success, he fails to prevent effective retaliation.

C. Implications for kind of war

The weapons developments we have described could conceivably influence the character of warfare in either of two directions neither of which can be ignored in our plans.

1. Most obviously, they could make war "total" to a degree never before experienced. An all-out thermonuclear war involving nations like the United States and the U. S. S. R. could easily destroy either or both, at least as powers of any consequence, in a matter of days (or hours).

2. There is increasing recognition, however, that the dangers implicit in participation in all-out thermonuclear war may result in thermonuclear "stalemate." In the words of Sir Winston Churchill, a "balance of terror" may replace the balance of power. All (or enough) nations may become super-cautious in dealing with others. This would mean, assuming no change in U. S. S. R. or Red China objectives, a continuation of the cold war—but under circumstances which would be peculiarly difficult and dangerous for the United States. For the United States and other Western countries, for rather obvious reasons associated with their political organization and their values, may fight this cold war with a degree of caution exceeding that of the ruthless Eastern dictatorships. This could easily lead to a series of Munich-type surrenders and the loss of the free world.

This is one of the reasons why the possibility of full thermonuclear war cannot be ruled out. We must fight the cold war as boldly as the Russians to avoid piecemeal surrender: This means almost inevitably engaging, or determining to engage if necessary, in military actions which could spread or degenerate into total war.

These military actions, or limited, local wars, may flare up as an extension in an almost literal sense of international negotiation, as a reflection of internal revolution, or as pawn moves by major powers to test or exploit a weakness. They would be the late 20th century "balance of terror" counterpart of the limited-scale, limited objectives wars of the "balance of power" century between Waterloo and World War I. We have seen many of these in recent years—the current contest in the Formosa straits; the Indochina War; the Korean conflict (small only by contrast with World War II or III); the Greek-Albanian-Yugoslav conflicts; the Chinese civil war; the Indonesia revolution; and others. While some of these were not of primary concern to the major

powers, most were. Challenges (or opportunities) like Greece, Korea, and Indochina will continue to present themselves. The recent history of restraint in use of nuclear weapons;⁶ of attempts to confine the wars; of negotiated armistices; of ability to swallow frustration where the outcome was completely adverse (as for us in Indochina and for the U. S. S. R. in Greece)—all these are significant indications that the limited-scale, limited-objectives war is here to stay.

But so is the danger of thermonuclear war, despite its recognized suicidal threat. The thermonuclear stalemate may be an unstable equilibrium because of the tendency for small wars to grow. Either side may resort to a thermonuclear strike to protect some presumed vital interest (e. g., on our side, Western Europe), or in frustration or desperation (e. g., if the cold war appears to be going hopelessly against it), gambling upon the very great advantages accruing from a surprise first strike. Finally, the very fearsomeness of the threat is an invitation to a calculating, ruthless power to remove it by force if any happy circumstance presents itself—as, for example, the temporary impotence or vulnerability of the opposing strategic air force; or one's own temporary invulnerability resulting from, say, a breakthrough in aid defense technology. Moreover, in considering the prospects of some power initiating thermonuclear war we cannot confine ourselves to the U. S. S. R. and the United States. Within the next 10 to 20 years (not too long a period for the weighing of some economic policies) several nations in addition to the United States and U. S. S. R. are likely to acquire a substantial thermonuclear capability. Quite apart from specifically military atomic programs, the widespread use of reactors for power will result in nuclear material stocks which may find their way into weapons.

It appears then that in our national security planning we must consider at least two contingencies or kinds of war—all-out thermonuclear war on the one hand; and limited, local actions of a holding or counteroffensive character on the other.

There is little, if any, sense in talking of the relative probabilities of these two contingencies. One of them is an event which would occur, for us, only once. Both are anything but independent of the policies we pursue. If we are prepared to deal only with one, we could be defeated, indeed destroyed, by the other. The number of kinds of war which we must consider cannot, therefore, be reduced below two.

Does it have to be expanded to three? Is there a third kind of war, besides the total and the local, for which preparation is required? It has sometimes been suggested that a third possibility is a large-scale and long war, like World War II, in which strategic bombing of cities is either withheld or, if attempted, is effective on both sides.⁷ Let us call this the World War II type war, although it might differ from World War II in such important military aspects as the widespread use of atomic weapons against military targets.

The question whether this World War II type of war is likely enough or dangerous enough to justify extensive preparations is, as we shall see, a crucial one for economic mobilization policy. I shall simply state my views, since to defend them would carry me far beyond the intended scope of this paper.

1. The contingency that strategic bombing would be attempted but ineffective on both sides I should regard as extremely unlikely, for reasons already explained.

2. Mutual withholding of strategic attacks on cities from fear of retaliation is a somewhat more serious possibility—but only if the withholding is combined with quite limited war objectives: if the apparent winner presses on for anything like unconditional surrender the apparent loser would convert the limited war to a total one. But a limited-objectives war would be unlikely to be large scale and long, like World War II. Mutual withholding plus limited objectives define what is essentially a local action.⁸

⁶ I would by no means rule out the use of tactical atomic weapons in local wars: in fact, the President has announced that we will use them in certain circumstances. But past restraint must be explained in part by the fear that their use would make it more difficult to limit the scale and objectives of the conflict.

⁷ If ineffective on only one side, the strategic bombing would be decisive and the war short.

⁸ There are other difficulties associated with mutual withholding of city bombing in any war transcending a local action. There may be no practicable way to delimit the restriction: we know that many strictly military targets are separated from large centers of population by less than the lethal radius of large bombs.

3. If a war of this kind did occur, we would have time to mobilize our industrial potential and ought to win eventually, just as we did in World War I and World War II, even if we were relatively unprepared at its beginning.⁹

In short, as of March 1955, I should regard this kind of war as least likely (of the three) and least important in our preparations. It might become most important if atomic disarmament were achieved. But this never looked very promising, and there are reasons for believing that effectively controlled atomic disarmament (the only kind United States policy has contemplated) is no longer technically feasible.¹⁰

Finally, a fourth kind of war has been suggested by Air Marshal Sir John Slessor—the “broken back war,” in which the contestants fight to a conclusion on the ground after successful strategic bombing on both sides. This would really be phase II of a total war—and we cannot completely neglect it in our planning. It is obviously not too important if phase I is completely successful on both sides, or if one side falls substantially shorter of complete success than the other.

II. THE NATURE AND SIGNIFICANCE OF ECONOMIC WAR POTENTIAL

A. *The declining importance of economic war potential*

By economic war potential I mean the maximum fully mobilized capability of an economy to supply the men and material required to fight a war. Clearly economic war potential depends mainly upon the size (or more accurately, maximum attainable size) of the national product, and to some extent upon its composition.

Before the development of nuclear weapons and the means of delivering them on distant targets, the military power of the United States could be fairly well measured by our economic potential. Geography afforded us the time we needed, if pressed, to translate most of our potential into power.¹¹ Because we were the wealthiest nation in the world with the largest steel and machinery industries, we were also the most powerful militarily.

The development of nuclear and especially of thermonuclear weapons represents a momentous turning point in the cost of acquiring military capabilities. Destructive power has now become so cheap that wars can be won or economies destroyed before there is time for mobilization.

In an all-out thermonuclear war the superior economic war potential of the United States is important only to the extent that it has been effectively diverted to security purposes before war starts. This is true for all our forces, offensive or defensive. It is particularly and most obviously true for our strategic air offensive forces and air defense. For preparedness for full thermonuclear war the United States must learn to rely on forces in being—not as cadres about which much larger, newly mobilized forces will be organized, but as the important forces.

In consequence the significance of economic war potential has been degraded, as well as altered in character. For the nation which can maintain the most formidable forces in being is not necessarily the wealthiest. In peacetime the proportion of national product which can be diverted to national-security purposes is by no means constant among nations. The United States traditionally has maintained very small forces in peacetime, and has regarded them as cadres rather than as integrated fighting units in a state of readiness. Much poorer countries, like Russia, have supported larger peacetime military budgets and forces. This degradation of the significance of economic war potential appears to be a calamity for the United States, for we should maintain our present substantial industrial lead over the U. S. S. R. for many years—as far ahead, indeed, as we can predict and plan.

Economic war potential also appears to be less than decisive in fighting local wars (Vietminh could defeat France in the jungles of northern Indochina); and of even less importance, as potential, in countering assaults by infiltration, subversion, civil war, and astute diplomacy.

⁹ This is almost a *reductio ad absurdum*. Russia would not allow us to win complete victory on these terms if she possessed a stockpile.

¹⁰ See Eugene Rabinowitch, *Living With H-Bombs*, Bulletin of the Atomic Scientists, vol. XI, No. 1, January 1955, pp. 5-8.

¹¹ Even before the development of nuclear weapons, geography proved an inadequate defense for European countries against blitzkrieg tactics based on aircraft and tanks.

B. The importance of economic strength before the outbreak of war

"The nostalgic idea that our industrial power is our greatest military asset could ruin our military planning."¹² But economic strength which is used for national-security purposes in time remains a great military asset. Using it in time demands a new approach to national-security problems—which to some extent we have already made, and which it is a major objective of this paper to help define and explain. The essential contribution of economic strength is that it permits us to do more of the numerous things which are desirable from the point of view of national security, but which, in their fullness, not even the wealthiest nation can afford.

What are these desirable things in a thermonuclear era?

1. Preparations for and deterrence of thermonuclear war. These would include strategic air forces, warning nets, active air defenses, and passive defenses of various kinds including perhaps dispersal, shelters, and large-scale stockpiling of both weapons and industrial commodities. It appears desirable not only to do all these things but to do them in style—to confront the U. S. S. R. with a variety of strategic air threats, each absolutely invulnerable to any conceivable weapon which might be used against it; to erect a continental air-defense system embodying all the latest and most expensive gadgetry of which any scientist has dreamed; and to buy enough passive defense of all kinds to insure our survival if by any chance the bombers still get through.

2. Preparations for local and limited wars also appear desirable: challenges to fight such wars are almost certain to occur, and it would be comforting to be able to accept such challenges, or to make counterchallenges, if we want to. Again, preparation in style seems desirable. Local, limited wars have taken many forms and occurred in many places in recent history; future possibilities are even more numerous. We should like to be prepared to fight in southeast Asia, the Middle East, or the Balkans; with or without atomic bombs; with native infantry wherever possible, but with our own in reserve where necessary, etc. We should like to have heavy stocks prepositioned and, in addition, a large capacity for moving men and materiel rapidly (by air?) to the theater of action. To back up our ready forces for such wars it would be desirable to provide trained reserves and facilities for quickly expanding the production of materiel.

3. It would doubtless also be desirable to prepare to fight again the World War II type of war which might conceivably occur. This would call for ready forces to fight a holding action (these might do double duty for local wars), and measures to enlarge the mobilization base and to increase its security and the speed with which it can be converted. The accumulation of raw material stockpiles from overseas sources would be desirable, for example, in addition to securing the sealanes, as would the construction of new capacity in industries which might bottleneck the expansion of war production, the support of multiple sources of supply by expensive splitting of procurement contracts, the training and maintenance of large Reserve forces, etc.

4. Cutting across all these, it would clearly be desirable to support a very large research and development effort. We are in an era in which a single technological mutation (as in the past, the development of radar and the atomic bomb) can far outweigh in military importance our substantial resource advantage. There are conceivable future mutations as important—perhaps the long-range missile, perhaps some means of defense against nuclear weapons. Research and development is most obviously desirable in the context of thermonuclear wars: here an instant of technological retardation behind the Russians could break the stalemate, blunt deterrence, and place us at the mercy of the Kremlin. But it is also possible to conceive of developments which would, for example, greatly improve the capability of the United States to fight small engagements in out-of-the-way places. Development is cheap only by contrast with the procurement and maintenance of ready forces. Given the Federal budget in its present form, it is not possible to tell how much is being spent on military research and development; but if we tried to develop everything interesting and possibly significant and therefore desirable, we could use all the potential as well as the actual scientific and engineering resources of the country.

5. Finally, there are substantial opportunities to use economic strength in the cold war. Economic warfare, whether waged against our enemies or for our friends ("lovefare"), can be expensive; the nation with the largest economic

¹² Thomas K. Finletter, *Power and Policy*, Harcourt, Brace & Co., New York, 1954, p. 256.

potential can best afford a bold foreign policy. This subject, despite its great importance, is beyond the scope of this paper.

These, then, are the desirable things—the things it would be nice to do from the point of view of national security. In the aggregate they far exceed our economic capabilities, so that hard choices must in any event be made. This is the problem of the next section. But the greater our economic strength, the more desirable things we can do, and the better we can do each. We cannot prepare for all kinds of wars without bankrupting the Nation, but maybe the United States can prepare for 2 rather than 1. We cannot develop every technological idea of promise, but maybe with three times Russia's economic strength we can develop enough more than she to keep ahead in the race for technological leadership. We cannot buy perfect protection against thermonuclear attack by any combination of active and passive defenses, but perhaps we can afford enough defense to reduce Russian confidence in success to the point where she is deterred from striking. Perhaps on top of all this, we can afford a positive economic foreign policy which will preserve and even extend our alliances.

At least, the possession of economic strength enables us to do more of these things than we otherwise could do. But it does so if, and only if, we use the strength now, during the cold war, before a hot war starts. While the traditional concept of the mobilization base is not yet fully obsolete, and may even justify a limited expenditure of budget, it is no longer the shield of the Republic.

III. THE ECONOMIC PROBLEMS

What are the important economic problems of national security in the strategic context which has been described?

First, and foremost, there are problems of the efficient use of resources for national-security purposes. The efficient allocation and use of resources has always been a chief concern of economists. If we have neglected such problems in the military sector this may be because in the United States this sector (indeed the whole Government) has until recently laid claim, except in brief periods of emergency, to such a small proportion of national resources. Now, with the prospect of national security expenditure continuing more or less indefinitely at 15 percent or so of national income and Government expenditure (including State and local) at almost double this amount, the efficient use of the very large resources involved has become a matter of primary importance.

Next, there is the whole gamut of economic problems which are traditionally called mobilization planning. The new strategic context requires a revolution in our approach to these problems. It requires a revolution, too, in our thinking about passive defense measures.

Finally, there are important problems of the long-run impact of national-security expenditure on the economy and how these can be made as favorable, or as little unfavorable, as possible.

A. The efficient use of resources for national-security purposes

1. *The hard strategic choices.*—To say that we cannot have all the desirable attributes of complete military preparation is simply to say that the choice of military measures is an economic problem; or, perhaps more appropriately, that it involves a host of interdependent economic problems. What is an efficient allocation of resources to the Military Establishment; and within it among services and major military tasks?

The security we can buy is relative. The basic rule for determining the appropriate allocation of resources to military purposes (size of military budget) is: Provide sufficient strength, relative to potential enemy forces, to deter war or win it. We need a higher budget if the potential enemy is the U. S. S. R. than if it is Argentina; higher if we have no allies than if we have reliable ones; higher if the U. S. S. R. devotes 20 percent of her national product to the military efficiently than if she devotes 10 percent inefficiently; higher if the U. S. S. R. increases her technological and industrial capability in future relative to ours, while devoting the same proportion to military purposes; higher if our strategy has to draw Soviet containment lines at our own shores than if we can draw them in the Eastern Hemisphere. Much discussion of the appropriate size of military budgets misses this essential point of relativity. An increase in the absolute efficiency with which we use resources ("more bang for a buck") creates no presumption that the budget can be cut when a potential enemy is correspondingly increasing his absolute efficiency ("more rubble for a ruble").

No quantitative analysis can tell us whether the budget level which will prove sufficient is \$20, \$30, \$40, or \$50 billion. In making strategic decisions the future

is only darkly visible. We have inadequate knowledge of enemy capabilities, still less of his intentions. We do not know what our allies will do in given circumstances, or even what we will do. The outcome of battles and campaign is always uncertain; the outcome of research and development programs is by definition speculative. All that we can be sure of is that, for any given efficiency in the use of resources, the higher the military budget the better the chance that we can attain the requisite security—at least in the short run.

But the higher the budget the higher, too, the costs—both the direct costs in resources diverted and usually, too, indirect costs.²² The decision about budget level has to be made by reasonable and patriotic men, weighing intuitively the gain in confidence from a higher budget on the one hand, costs on the other.

This decision cannot be made sensibly without considering the security uses to which the budget will be put, and especially its gross allocation among services and major military tasks. The problem of whether to vote a larger budget is the problem of whether to buy another of the national security goods—the desirable things enumerated in the preceding section. Since there are limits even to the economic strength of the United States and much narrower limits to the military budgets which democratic governments will approve in peacetime, all the national security goods cannot be purchased. Hard strategic choices have to be made—either prior to or as part of the budget-making process.

Can we suggest parts of an efficient composition of our military forces from general considerations alone? First, are there any aspects of military posture which appear so desirable that they approximate for practical purposes to the absolute status of requirements, which would be a first charge on the military budget at virtually any relevant total level of that budget? Further, a quite different thing, are these aspects so dominant that they would command a major share as well as first priority of the total budget at high levels as well as low? I think the answer to the first question is "Yes"; to the second, "No."

Clearly in the present era a real retaliatory atomic capability is the first requisite—the basis of deterrence. The minimal requirement for deterrence is that we preclude on the enemy's part any high confidence that he could so successfully attack our air strength that we could not retaliate with enough to devastate his cities. This is not a trivial requirement, but it is certainly a manageable one within the confines of budgetary scales to which we have become adjusted. For this minimal purpose, invulnerability of the retaliatory force is vitally important and very large numbers of bombers or missiles as such are not. The striking feature of our time, to repeat, is the terrible power of but a few hundred successful air deliveries.

Can we concentrate on thermonuclear striking power alone? Some have argued that we can and should, enforcing deterrence of all enemy aggressions, total or local, by this massive retaliation threat. Advocates of this strategy argue for its effectiveness, simplicity, and cheapness. Their concern is that if we do not adopt this strategy the Communist powers can exploit their initiative by fomenting, at small risk, a succession of limited wars at diverse places which would dissipate our economic strength and take advantage of a democracy's difficulties in quickly and flexibly adjusting diplomatic and military tactics. They look for great economies from relative neglect of conventional armaments and mobilization measures.

A demerit of this strategy is, in a sense, its cheapness. For it is cheap not only for us but also for the U. S. S. R., which can certainly build a similar force of such absolute size as to make any quantitative superiority of our offensive force of secondary importance. After doing so, the Communist powers could still allocate substantial resources to Korea and Indochina. Would they be deterred from such ventures by our thermonuclear force?

If Fortress America were fact and not fancy—if our population together with provision for maintenance of minimal capital stocks were effectively protected against tomorrow's weapons, let alone today's, by some combination of air defense and of extreme dispersal or underground shelters, so that postattack recuperation were feasible—then, and probably only then, would our threat of massive thermonuclear retaliation to any and all kinds of aggression be believed and effective. But Fortress America does not exist. Advocates of the pure massive retaliation strategy must face the implications of the stark fact of virtual naked exposure of our population and economy to atomic attack.

Building Fortress America would not be cheap. Indeed, a more sophisticated

²² Indirect costs of high military budgets are discussed below in sec. III-D-1.

defense of the pure massive retaliation strategy perceives the foolishness of mutually cheap strategies in a contest with an economically weaker opponent, and welcomes the expensiveness of the active and passive defense measures which would be required. If the Russians enter this new kind of armaments race, the argument runs, we can better afford it than they; if they do not while we do, we can restore the kind of asymmetry which existed when we had an atomic monopoly and thus make our retaliatory threat real. But I cannot accept this basis for a pure massive retaliation strategy either. The protection afforded by even a Fortress America would still be far from perfect against threats now expected, not to mention the likelihood of vulnerability to new technological developments in offensive weapons. We could still not contemplate the actual use of our enormous striking power with composure, and, that being the case, a conclusive argument against a wholesale adoption of a one-war preparation strategy is the inflexibility which it would impart to our planning and our operations. The hands of future Presidents, National Security Councils, and Joint Chiefs of Staff would be tied. There would be but one decision: to unleash or keep leashed our atomic striking force.

It is clear from our actions, if not occasionally from our words, that we have not adopted this kind of strategy. We have, I think rightly, retained the flexibility to fight some other kinds of war. So has the U. S. S. R. to judge by continued public announcement of the same threat of 175 active divisions backed by 20,000 planes and a growing navy. To those who profess we cannot afford a mixed strategy, the evidence of continued Soviet capability despite lesser economic strength should at least give pause.

Granted that flexibility is good, and that we can afford some, what kind and how much should we purchase? Our earlier discussion suggests that the next highest priority, after the atomic striking force and some minimal associated defense measures, is a capability to fight local wars—to meet the kinds of challenges against which we will not threaten or use thermonuclear retaliation. It is far from clear either from history (Greece, Korea) or from analysis (thermonuclear striking power is a great equalizer of economic potential) that the United States is at a comparative disadvantage in fighting local wars.

Again, however, the extent of preparation which qualifies as minimal requirement, without prejudice to the question of the further extent of desirability, is probably well within the scale of current effort. Even the perspective of Soviet bloc masses of presumably hundreds of ready divisions and bulk manpower potential needs to be qualified by the fact that we never placed in Korea more than a fraction of the United States divisions which even current plans for reduced strength will keep active, while we maintain beyond our airpower a Navy equal to all the rest of the world's put together¹⁴ and support via our mutual defense programs one hundred eighty-odd divisions of our allies throughout the world.¹⁵ By judicious support of the more economical forces of our allies, coupled with ready mobility of United States active forces, our ability to fight conventionally if we chose to do so is already formidable. And with our forces built well above pre-Korea levels, the added costs of actual combat are relatively minor. Even the official calculation of likely incremental military costs from actual Korean fighting, probably an overstatement, amounted to but \$6 billion per year under maximum fighting intensity,¹⁶ less than 2 percent of our national product.

I see no presumption, therefore, that attainment of the minimum requirements of a dual-war capability generates budgetary requirements beyond current levels, let alone beyond the levels which it is claimed we can afford. To say that, however, is not to assert in the least that we should be content with those minimal requirements. It is only to assert that the pertinent decisions must be made in terms of the relative desirability of higher than minimal military goals balanced against cost, with more or less of either clearly possible if we will it.

How large should the national security budget be, and upon what should it be spent? No honest and intelligent public servant pretends to know the answer. Yet clearly some answers are better than others. Hard thinking alone, accessible to layman and Government official alike, does enable us to discern some fallacies which we must prevent from guiding our actions. Beyond that, it is vitally important to perceive that inadequate grounds for decision, rooted in

¹⁴ Jane's Fighting Ships, 1954-55, p. vi., McGraw-Hill Publishing Co., New York.

¹⁵ President's Budget Message for Fiscal Year 1956, New York Times, January 18, 1955, p. 16.

¹⁶ Defense Department estimate cited in Mutual Security Act, House hearings, 1952, pp. 358-359.

failure to treat the relevant issues of choice systematically as economic problems at all levels of the Government, can be improved. We can clarify, not for Congress alone but for internal military decision as well, what we propose to buy, at what cost, why.

2. *The economics of strategic decision making.*—As there are dozens of ways to make a mouse trap or transport it to market, so there are dozens of ways to accomplish any military or national security task. In the private economy we have a price mechanism which, imperfectly but pervasively, leads to the choice of relatively efficient methods and the rejection of relatively inefficient ones. In the Government, including the military, there is no comparable system.

It is perhaps not obvious that the range of choice in national security planning is so wide. Consider several cases at different levels of decision making:

(a) The provision of some measure of protection to the United States economy and population against atomic attack. Broad alternatives include (1) widespread dispersal of industry and population before attack; (2) shelters and underground construction; (3) fighter and missile defenses; (4) (in some circumstances) an atomic striking force which can destroy the enemy striking force on the ground.

(b) Range extension of bombers or fighters. Broad alternatives are (1) operating bases farther forward, fixed or floating; (2) air refueling; (3) staging bases forward for ground refueling; (4) larger aircraft with greater fuel capacity.

(c) The design of a new machinegun. There are exchange rates between various performance characteristics (range, accuracy, lethality of bullet, durability, reliability—some of which may have high military worth, some little), physical characteristics (weight of gun, weight of ammunition—which may grossly affect the size or effectiveness of the unit using the gun) and costs in money, development time, and production time.

Each of these problems is, in an important sense, an economic problem in the efficient use of resources. Each requires for its solution a definition of objectives, a systematic analysis of alternative means of achieving the objectives, the costing of these means (primarily in budget dollars, but sometimes in other resources and time), and the selection of a preferred alternative on the basis of the relations between costs (including the military equivalent of external economies and diseconomies where these are important) and objectives.

Many explicit analyses of alternative means of achieving military objectives have been made, and the means costed and compared. Where this has been done it has not been unusual to find that one means (e. g., one aircraft type and associated base system) is 2 to 5 times as efficient in accomplishing a defined quantitative objective as others equally plausible with equally enthusiastic supporters.¹⁷ Even where a full explicit quantitative analysis is impossible because objectives are ill defined or incommensurate, the mere systematic sorting out of the alternatives and their costing can be a powerful aid to the intuition of the decision makers.

The great difficulty is that military (and other governmental) decisions are typically made in a manner which precludes such systematic consideration. First plans are written, next requirements are estimated from the plans, and only then are costs and budgets calculated. This sequence is bad enough in itself, because choices are made (on what criterion?) before alternatives are costed. Only if the cost calculation turns out to be out of line are the plans and requirements revised—and then only to bring them into line. The test and correction are for feasibility, not efficient or optimality.

The solutions to these problems are difficult, and much time will be required to secure assent to major revisions in traditional procedures. The beginning must be a broader understanding that the problems are economic as well as strategic and scientific; that the alternatives must be compared, and that economic criteria are appropriate for selecting the preferred alternative.

There is still much resistance to economic criteria based on simple misunderstanding of the nature of the problem—"What do dollars matter when national survival is at stake?" Dollars matter precisely because they represent (however imperfectly in some circumstances) national resources; and because the weapon system which achieves a given military objective (i. e., target destruction) at minimum cost is the same weapon system which maximizes accomplish-

¹⁷ This should come as no surprise to economists familiar with international differences in productivity.

ment of that objective (e. g., number of targets destroyed) with a given budget.¹⁸ There is no conflict between the interests of national security and the interests of the taxpayer in the spending of any given national security budget.¹⁹

New items of equipment do tend, on a unit basis, to be more expensive than old; but this does not mean that the taxpayer suffers. What counts is not the unit production cost, but the total system cost (i. e., the cost of the system in which the new equipment is embedded) of achieving an appropriate national security objective. This may be greater or less with new, more "expensive," higher performance equipment. In the case of the atomic bomb it was much less, although the bombs themselves are presumably much more expensive. There was no presumption that the substitution of the "expensive" B-47 for the "cheap" B-29 would be uneconomic (and no contrary presumption). The problem of the relative utilities and costs of quality and quantity is an economic one, amenable to economic calculus.

3. *Techniques for economizing.*—The first requirement is understanding of the relevance of economic criteria. Without this, all else fails. But with it, improvement in techniques and institutional arrangements can help.

(a) An important area for institutional reform, and the one which has attracted most public attention, is the budget.²⁰ We need means by which aggregate costing of total weapon system alternatives can be quickly made available to military planners. But present Government cost estimating is tied to the conventional budget, and present budget procedures obstruct (or at least fail to facilitate) efficient use of resources by the Government for a number of reasons:

(1) Budget procedures are burdensome and time consuming. This makes it impossible to calculate a number of alternative budgets with different force levels and force compositions. The fact that only one budget is presented means that, in turn, in the budget review process within the executive branch and the Congress, there is a tendency for the reviewers to overlook the broad alternatives and confine their attention to minor changes in the budgeted forces or their housekeeping. The length of the budget cycle, which begins about 2 years before funds are appropriated, has the further unfortunate consequence that there is great pressure to make decisions involving funds prematurely, i. e., before they have to be made and, in view of uncertainties, ought to be made.

(2) Budget categories bear little or no relation to the major tasks or missions of the military services. They tell us how much is to be spent by the Air Force for real estate or on military personnel, but not how much for air defense. In consequence, Congressmen cannot know the implications of budget changes (nor can the military without extensive recalculation). We cannot even tell from budget accounting how much we have spent on different tasks or missions in the past.

(3) Budgets are drawn up for a single fiscal year. This is too short a period to examine the cost implications of proposed changes in military force composition.

If we could recast the military budget in truly functional categories, and devise means of rapidly calculating alternative budgets and the budget consequences over a period of years of changed force composition, we would undoubtedly produce better budgets (i. e., reflecting more efficient force compositions) and a better informed review of budget proposals.

Certainly no single instrument like the budget can accomplish everything. If we tried to make it bear the whole burden of achieving economic efficiency in addition to its other functions, like fiduciary accounting, we might end by making it a clumsier instrument than it now is. Economizing is the responsibility of all staffs, not of a single staff or instrument, and efficient means must normally be found by special studies with inputs derived by statistical estimating procedures. It is, however, of the greatest importance that cost estimating for special studies be tied in to budget accounting which can provide both a firm

¹⁸ These two ways of stating the economic criterion are logically identical for any given level of budget or scale of operations.

¹⁹ There is, of course, conflict in determining the level of the budget or the way in which gains from increased efficiency are split between a greater military capability and tax savings. There are also inevitable conflicts between parochial interests of parts of the military establishment and broader interests of national security—part of which stem from the necessity to bargain for budgets.

²⁰ See the CED research study, *The Budgetary Process in the United States*, by Arthur Smithies (McGraw-Hill, New York, 1955); for a detailed discussion of Federal budget problems. See also Control of Federal Government Expenditures, Committee for Economic Development, January 1955.

basis from which to extrapolate and a post facto check on the accuracy of the estimates. This means that budget accounts must be kept in categories which are relevant and important for policy decisions.

(b) In recent years, some military staffs have become permeated with this kind of economic thinking, and have attempted systematically to examine alternatives. Their efforts have been aided by formal quantitative analysis performed by scientific staffs and groups.²¹ Such analysis was given a considerable stimulus during World War II, when it was extensively used in the comparison of military tactics—e. g., target selection; deployments of aircraft or ships. Since the war this general approach has also been applied to procurement and development problems which has required exploring a more distant and uncertain future, considering a vastly expanded number of variables, and examining a wider range of possible actions. As the problems have become more complex, approximately more sophisticated mathematical theory and statistical and computing techniques have been employed.

The really difficult problems in making such studies, however, have not been related to techniques and computing capacity, but to design and criteria. How big should the weapon systems under consideration be in order to embrace all operations that are affected (importantly) by the alternative policies? Should the model be static or dynamic? Where and to which extent should one "aggregate"? It is easy to slip into the adoption of a wrong criterion—e. g., the maximum ratio of gain to cost, or minimum cost of doing the wrong job, or minimum number of aircraft (or bombs or some other single input, ignoring other costs) required to perform a specified task.²²

These problems of criteria and design are the economic aspects of formal quantitative studies. Economists have few ready answers, but they are at home with problems of this character. We tend to underestimate the extent to which most mathematical and natural scientists are not.

c. The absence of organized markets and profit motivation in the Government has led to various proposals for simulating them. The Government corporation is an example. In the military sphere the most interesting are the stock and industrial funds. These funds, appropriated by Congress for the purpose, provide working capital for certain activities which are conducted much as though they were private businesses. Stock funds finance stock handling activities (e. g., the retailing of petroleum products, or enlisted men's clothing), and industrial funds finance industrial type establishments (e. g., the operation of printing plants). Such "firms" purchase their inputs, adopt businesslike accounting systems, charge prices to military units or others who buy their output, submit profit-and-loss statements, and have incentives to minimize costs. The military units who are customers are given larger budgets to enable them to buy from these enterprises, which are self-supporting thereafter.

The funds are expected to motivate customers to economize in the use of products or services for which they must pay.²³ By and large, experience with the funds to date is said to be encouraging, and there are undoubtedly additional opportunities for efficiency through the use of funded "businesses." But the scope for their application may not be large, and even where applicable the mere creation of funds is no panacea. Whether incentives are sharpened depends upon how the funds are set up; upon the rewards and penalties (if any) attaching to the profit-and-loss account; upon the appropriateness of the motivation under funded enterprises;²⁴ upon whether customers really sacrifice some-

²¹ The activity became known as operations research or analysis since it was used to assist in operational decisions. In its expanded context, it is often called systems analysis. For history and examples, see Morse and Kimball, *Methods of Operations Research*, the Technology Press of Massachusetts Institute of Technology, and John Wiley & Sons, Inc., New York, 1951; and the *Journal of the Operations Research Society of America*.

²² For a fuller discussion and examples, see the chapter on criteria, *Suboptimization on Operations Problems*, by Hitch and McKean in McCloskey and Trefethen, *Operations Research for Management*, the Johns Hopkins Press, Baltimore, 1954, pp. 168-186. Criteria problems are much more difficult in governmental and military than in business applications because there are no organized markets to value (in commensurate terms) the inputs and outputs. There are difficulties involving uncertainty and time discounting even in business applications; these have their military counterparts.

²³ Users of the Military Sea Transport Service, for example, must pay for space they purchase, whether they use it or not. If ships are not unloaded promptly, demurrage is incurred. Savings have been estimated at \$100 million per year.

²⁴ For example, the motivation for economy supplied by the enlisted men's clothing fund seems wholly appropriate and desirable (given the constraints imposed), but would it be appropriate to have enlisted men purchase clothing and hand grenades from the same allowance?

thing if they do not economize (they do not if their budget is automatically increased).

d. Finally, there is probably vast scope for improvement, on grounds of efficiency alone, in the contractual relations between the military services and private industry. For those numerous situations in which competitive bidding is not feasible, no good alternative to the cost-plus-fixed-fee contract has ever been found, or at least, widely applied: new forms and applications of the incentive-contract deserve exploration. No one knows how best to compromise the conflicting claims of control by the services and autonomy for the contractor. In the critical research and development area, there are challenging special difficulties in securing adequate and appropriate incentives.

These contractual relations have become an important problem because Government (especially the military services) now purchases so large a proportion of industrial output. If the Government buys in such a way as not to encourage (or actually to discourage) efficiency, the productivity of the whole economy will be significantly affected.

B. Mobilization planning

1. *Support of military operations.*—It is often alleged that the generals are always preparing to fight the last war, but our economic mobilization planning supplies far more support for this allegation than our plans for fighting. The very terms "mobilization planning" and "mobilization base" convey a picture of the very special World War II kind of hostilities, with long holding action abroad while the arsenal of democracy, protected by geography from any assault, girds for ultimate massive war production. In preparation for such a war, prewar mobilization measures have included a stockpiling program, standby or stored facilities or equipment, and fairly elaborate plans for wartime economic organization and controls. Capacity targets for specific industries have been set and subsidies or other inducements, such as accelerated amortization, offered to insure their being met. In addition, extensive stockpiling of inactive tools and of critical materials whose overseas sources might be cut off in wartime has been undertaken to round out the base for production.

If we take the thermonuclear age seriously, such mobilization policies and programs are not only inappropriate, they are serious dangers. They are wrongly conceived; they preempt governmental authority and resources for these misconceptions and thereby prevent consideration and adoption of appropriate ideas and measures; and they sponsor an independence, on the one hand, of military policy and, on the other, mobilization plans, for a situation which requires unity in these decisions.

The basic difficulty is that mobilization is visualized as a 1- to 2-year conversion of the total economy which promises massive economic assistance for any and all future military situations. This is surely wrong; there is unlikely to be time for conversion; we are likely to have recurrent Korea or Formosa-type crises, and massive economic response of the total economy should not be continually called for, if ever. It is crucial to see that generalized economic mobilization in World War II lines is appropriate only for the kind of war which is least likely. For that unlikely case our economic position vis-a-vis the Soviets is sufficiently superior that we can manage with very little economic insurance in the form of 3-year raw material stockpiles and the like.

For the catastrophic contingency of thermonuclear war, we cannot contemplate plans for any large-scale war production. We must contemplate horrendous disaster and plan therefore for its minimization and for recuperation.

For the contingency of limited and local wars, we need mobilization insurance only to the extent that forces in being turn out to be inadequate. For this, rapidity and flexibility of mobilization are more important than massive scale. Given that there will be a considerable variation in types of military force requirements for the various possibilities, highly flexible mobilization plans capable of providing widely varied support to the military should be a major desideratum. These are likely to involve, for example, plans for rapid call-up of Reserves who would be equipped from existing stores of moderately efficient military equipment. I believe it is very unlikely that a well-designed mobilization program will have much use for large raw material stockpiles or for standby facilities designed to increase supplies to military forces without reduction in civilian consumption. It may well require prepositioned stocks of material in dispersed locations throughout the world, and some excess or convertible capacity for rapid transportation of strategic resources of men and equipment to crisis areas.

While the economic drain of limited wars is unlikely to require massive mobilization in the usual sense,²⁵ the ability rapidly to expand production in a limited number of particular lines may be more economical to purchase than stocks on hand necessary to fight all kinds of peripheral wars, or alternatively the course of the fighting may indicate urgent requirements for specific munitions whose significance may not have been foreseen (e. g., the superbazooka in Korea).

2. *Recuperation planning.*—The contingency of a major war with reciprocal nuclear bombing does require prewar preparations. Why? There is a chance of enormous damage to us, and advance preparation may make the difference between surviving and not surviving. Passive defense—dispersal, shelters, etc.—will be discussed later. By “recuperation planning” I mean restoration first of the means of subsistence and then, as rapidly as possible, of a functioning economy which can, if necessary, support a “broken back” war, and in any case, begin gradually to recover its vitality.

Once we specify passive defense policies and run simulated attacks, then we can start to plan locations and forms of survival stockpiles; appraise whether each regional economy must become a viable economic entity into itself; address the questions of political and economic organization appropriate to disaster-struck societies which survive; concern ourselves with how transport can knit the fragments together again; whether to try to repopulate cities which have been attacked; etc. While a full scale thermonuclear war probably could endure no more than days or weeks, this is sufficient time for millions to die of hunger, thirst, epidemic, cold, or contaminated food and water, even if passive defense measures succeed in defending them against blast, fire, and initial fallout. And, of course, while existing stocks might make possible survival for weeks or months, longer-term survival must depend upon economic restoration, again appropriate to the numbers and locations of survivors.

Plans to control the distribution of these necessities in the emergency will be necessary; the continuity of government itself (if necessary on a decentralized basis) should be provided for, with auxiliary underground command centers equipped with proper communications facilities; teams of recuperation, demolition, and decontamination specialists should be trained and equipped; measures should be taken to insure the survival and availability of vital records and blueprints; plans for refugee support and control should be thought out and disseminated to the authorities likely to have the responsibility. There will be many other problems which call for peacetime planning—housing, planned migration, martial law, debt moratoria, money, and credit supply. On some of these a beginning has been made. Some of the mobilization planning which has dominated the scene to date (preparing drafts of limitation orders, improving the CMP materials allocations procedures, planning a system of price controls, developing “feasibility tests” of war plans, etc.) is not entirely waste motion, but it has distracted attention from problems deserving much greater emphasis.

Our deliberate stockpiling policies seem full of expensive inconsistencies. We have remembered submarines but, for the most part, forgotten atomic bombs. An interesting apparent exception occurred last fall in the extension of the stockpiling program to lead and zinc. It was argued for the extension that, because of the bombing threat, it was now necessary to stockpile critical materials produced domestically as well as those produced overseas. *Prima facie* this represents a considerable advance in thinking. However, if there is nuclear bombing of this country, the one thing we could be practically sure of is that there would be plenty of lead and zinc around. The reason, of course, is that an attacker would hardly waste bombs on lead and zinc mines or primary processing facilities; which are typically isolated installations; destruction of the cities or industrial complexes which he would more reasonably attack, on the other hand, would wipe out most of the customers for lead and zinc production (as well as providing a lot of scrap).

On the other hand, a program adopted for domestic economic and political reasons with no reference to its national defense implications may turn out to be of really critical importance. I refer here to the agricultural price-support program: this has had the effect of providing a supply of food which could be used to support the entire United States population for about 8 months. It would require only a rather small investment to insure that these stocks will

²⁵ This statement is based on the assumption that military budgets will not fall substantially from current levels. The Korean semimobilization was connected with the very low level of military budgets operative for some time before the emergency occurred.

be substantially preserved from atomic blast and contamination. We should examine policies of this kind deliberately. One of the major components of subsistence and recuperation planning should be the provision and safeguarding of stocks of finished goods ready for use. In a bombing emergency, such stock-piles will be far more valuable than "critical materials" convertible into useful products only by extensive processing operations—which an economy largely paralyzed by bombing might not be able to carry out for weeks, months, or years.

In general, the strategic setting suggests that emphasis should be shifted from the policy of the mobilization base to a policy of a subsistence and recuperation base, plus plans for the support and rapid, flexible augmentation of forces in being for a variety of possible less-than-total wars. The increase in size of the mobilization base which we have been and still are promoting is of strictly secondary importance.

C. Passive defense

Few policies have been the subject of more exhortation and less accomplishment than proposals to reduce the vulnerability of American population, cities, and industry to atomic bombing. On the one hand, the inability of active defenses to guarantee a high degree of protection seems to have engendered a spate of assertions that America could or should be made invulnerable in a few years; on the other hand, the almost total lack of accomplishment leads to a suspicion that the problem is not simple or close to solution. But solution is urgently needed.

In the first place, passive defense is an integral part of military preparation for thermonuclear war. It is interdependent with active defense plans—for example, an evacuation or shelter program is crucially dependent upon the warning time that radar nets provide; effective dispersal is equivalent to shooting down attacking bombers; the choice of protective measures for military and civilian targets combined vitally affects enemy choice of offensive weapons. Second, passive defense has a potentially major role to play in the overall military strategy of the cold war. It is difficult enough in the best of circumstances for the political leaders of a democracy to bargain stanchly and to act with appropriate boldness in crisis situations. But it will be much more difficult for these leaders to deal confidently in this precarious game if they know that the society and population for which they are responsible are totally at risk to an enemy countermove. Finally, if deterrence fails and thermonuclear war occurs, effective passive defense preparations would serve the two objectives of saving lives and of permitting the war to be prosecuted. But with all these powerful impulses to effective passive defense preparation, we must nevertheless bear in mind that we can at best achieve only a relatively greater safety, and that in the limiting case of sufficient weapons or conceivably in future of technologically more advanced weapons, nothing can help.

The major passive defense possibilities we need to consider, in addition to the "recuperation" planning already discussed, are (1) prewar dispersal of population and industry; (2) "hardening" of population and industry by shelters, protective construction, etc.; and (3) formulation of plans to insure proper behavior, especially of population, when the emergency occurs. For each of these and for the various interesting combinations of them, we need to know how much the proposal would cost, and what its utility is likely to be in the various possible war contexts. In addition, businessmen and economists have a responsibility in the design of devices and instruments which might at least partially bring about the desired reduction of vulnerability without excessive Government controls and interventions in private economic affairs. I cannot emphasize too strongly that these fundamental questions have received hardly any study, and that we are therefore ill-prepared to formulate desirable policies and ways to achieve them.

On this latter, I need not remind you that this "republic is a raft * * * your feet are always in the water" and it requires more than a captain's decision to steer the damn thing. Virtually all promising passive defense measures promise also to produce great shifts in existing income and wealth, violations of property rights and other established interests, distortions of citizens' individual preferences, and large tax bills. This quite as much as ignorance of the facts has stayed progress on passive defense and will not disappear from mere study.

1. Prewar dispersal.—Dispersal is the passive defense alternative which until recently has received the most attention, though still hardly any searching analysis. It is an official policy of the Government, but an uncertain fumbling one, strongly supported by oratory but only ineffectively by financial inducement, so

that little has been obtained in the way of results. Perhaps this is just as well: The Government conception of dispersal up to the very day of Mr. Strauss' public announcement of the characteristic of an H-bomb continued to be appropriate for an obsolescent weapon.

In thinking our way through the dispersal problem, we must realize that (disregarding the nuances of satellite cities versus ribbon cities) there are two quite legitimate, but very different, extreme possibilities. One is a very major effort to disperse industry and population from presently congested areas in a short period, say 5 or 10 years. This would be directed to reducing the population at risk from destruction of, say, the 100 largest cities from the present 40 to 50 million residents to one-fourth of one-half this number. Or if the enemy scale of attack were such as to destroy, say, the 400 largest cities, the population involved would be less than half the 60 to 70 million now resident there. This kind of drastic and rapid dispersal is the only kind which can produce within a decade the significant results which strong protagonists of dispersal have in mind. But such dispersal would be enormously expensive; it would sharply reduce the efficiency of the American economy (by impairing communications and organizational effectiveness as well as by adding ton-miles of transportation and sacrificing scale economies); it could only be accomplished by central direction of a type which is inconsistent with our concept of free enterprise and which, in any event, the Government is not equipped to give; in general, it touches or transgresses the boundaries of political possibility.

The other type of dispersal, dispersal of population and capital growth could be much cheaper and much less painful, but is also much slower and less rewarding. Such dispersal could, in a generation or so, result in 10 to 20 million less people in the larger cities than would otherwise be there. But it does not reduce the numbers now at risk in the larger places. Further, even this dispersal is not painless or costless. We make the distinction between dispersing old and new capital much too glibly: most new construction is closely associated with existing equipment or organization. There would be severe losses of wealth and income, much personal dislocation, political resistance, and the ever present problem of how, in a free-enterprise democracy, equitably and efficiently to achieve the objective. In theory subsidy, tax, zoning regulations, war-damage insurance,²⁵ and other devices could do the trick, if politically acceptable. In practice, much slippage would have to be expected.

From the point of view of military usefulness, dispersal of either type (rapid or slow) has one important advantage and one overwhelming disadvantage. The advantage is the fact that any gain which might be obtained is not acutely dependent upon getting the predicted warning time or upon the proper functioning of the civil defense system. The disadvantage is that the policy is very vulnerable to increases in the power of the enemy attack. We are already familiar with the fact that what was presumed to be a "safe" removal distance from potential target areas in the prethermonuclear era is now too small (especially considering fallout effects). In addition, even if we dispersed so effectively as to double the number of targets for the enemy, he need only double the scale of his attack to achieve the same effect. Unfortunately, it appears that in this kind of race the incremental offensive power can be bought relatively cheaply.

2. "*Hardening*."—This may be divided into emergency measures, the most important of which is provision of air-raid shelters for population, and permanent changes in physical structures, which may vary from providing sprinkler systems or reducing the use of glass walls to complete underground construction. Air-raid shelters have been in disrepute, largely because of a belief that a thermonuclear bomb will physically obliterate a city. Actually, this is not true, especially for deep underground installations. It appears that, assuming enough warning to enable people to take shelter, a very high degree of protection in a city (i. e., one that would raise the enemy's bomb requirements to inflict equivalent casualties by factors like 10 to 25) could be gained by underground shelters at costs that, while substantial, are moderate in relation to the total security budget. It is symptomatic of our planning that, to the best of my knowledge, no reliable estimates of the costs exist, or of how they would vary as between cities, suburbs, and country for varying degrees of protection.

Hardening of durable capital, whether by underground construction or less extreme measures, is a policy not particularly dependent upon warning time.

²⁵ See J. Hirschleifer, *War Damage Insurance*, Review of Economics and Statistics, vol. XXXV, No. 2, May 1953.

And, in many cases, large returns would be gained from moderate investments in protection. It is possible that this policy is not receiving the attention it deserves.

3. *Behavior under attack.*—Planning for behavior under attack has been the main function of the Federal Civil Defense Administration, but our lack of preparedness here is still glaring. It will remain so until civil-defense authorities are given the financial resources and political support necessary to do the job. I may comment that the evacuation policy pushed by FCDA is critically dependent (far more so than shelters) upon receiving a relatively long warning, which in view of technological developments and for other reasons we probably cannot count on. The very interesting possibilities of "strategic evacuation," i. e., evacuation on crisis rather than warning, merit investigation. We have not begun to solve the problem of where evacuees should go. The subject of population behavior and industrial recovery in an environment of widespread radioactive contamination has also been relatively neglected.

If I have given the impression that passive defense measures are anything other than of high importance for investigation, I have erred. I wanted only to leave the impression that they cannot be panaceas. They have promise, but we shall find effective passive defense measures only if we adapt them to the threat—for example, if we incorporate fallout protection in dispersal and evacuation schemes. And we must accept the strategic situation: our choice in future will not be between thousands of casualties and millions but between millions and tens of millions—or possibly only between tens of millions and most of the population.

D. Long-run effects on the economy

The long-run strength and growth of the American economy remains of great importance for national security despite all we have said about the altered and reduced significance of economic war potential. One will always have to pay for security; and the fact that the Russians find it easier to divert a given fraction of their national product to military purposes in peacetime makes it all the more important that we keep our national product well ahead of theirs.

Many domestic economic policies can contribute importantly to promoting or retarding the growth of national output. Most of these have no special direct relation to national security, and any attempt to consider the general problem of economic growth would carry us far beyond the appropriate scope of this paper. Perhaps, however, one aspect of domestic economic policy with no obvious defense overtones deserves mention because it is so crucial. A sharp decline in the level of United States activity—and it would not have to be anything like the deep depression of the 1930's—could not only reduce our economic strength and interrupt our growth but could also pull down the economies of our allies. Without a shot being fired, a good portion of the free world could be lost by a severe United States recession. It is especially important that we be on guard against overconfidence in "new era" psychology.

We have several responsibilities with respect to national security policies with potentially adverse or favorable effects on growth: first, to understand the nature of the effects; second, to recommend policies which will render them as favorable, or as little unfavorable, as possible; third, to provide suitable warnings against policies (e. g., some forms of industrial dispersal) which buy some security in the near future at the cost of undermining long-term economic strength.

1. *Effects of large military budgets.*—What are the real costs involved in voting large military budgets? This is the appropriate question—not the irrelevant one: how large a military budget can the American economy stand?

We distinguished in section III (A) the direct and indirect costs of military budgets. Direct costs are straightforward enough: when resources are diverted to military purposes by voting a budget they cannot be used for other purposes (such as civilian consumption or investment). If the military has \$10 billion more, the rest of the economy has about \$10 billion less.²⁷

The indirect costs, on the other hand, are complex and difficult to measure, but in some circumstances can be more important than the mere deprivation of

²⁷ There are two important exceptions: (1) If there are unemployed or underemployed resources, it is, of course, possible to increase military expenditure without contracting civilian. The "multiplier" and "accelerator" aspects of military expenditure in these circumstances, when it is not offset by equivalent increases in taxation, are tolerably well understood. (2) During a war (or short, sharp mobilization period as post-Korea), it is possible to get increased production by overtime and by drawing into the labor force people who do not normally work.

civilians. It is not enough, except possibly in a depression, for Congress to vote a larger military budget. It must also find means to finance the budget—in real terms, to transfer the resources. This is a problem of taxation and fiscal policy, and of economic controls—direct or indirect—and their consequences.

The problem of minimizing the indirect adverse effect of high military budgets in peacetime was of no practical importance before World War II. It is likely to be of great practical importance in the future. Even the present budget, which is well within our means, raises serious questions about the appropriateness of our tax structure; and circumstances may well occur in which we will need substantially higher military budgets than at present if we are to prevent our superior economic war potential from being whittled down to equality or worse in actual military power. We know too little about how to finance and implement them at minimum real cost.

In theory, if we knew all the relevant "utility functions" and could tax in a sufficiently discriminating manner, and if the taxpaying public were fully convinced of the need for the taxes, we could keep indirect costs at or near zero. It is possible to conceive of "perfect" taxes which have no adverse effect on incentives short of starvation. In practice, we lack the necessary knowledge. Any practicable tax, if it is high enough, distorts and otherwise adversely affects incentives and the functioning of the economy.

As a corollary, almost any kind of tax, if it is low enough, is innocuous. Indirect costs of higher military budgets are, past a point, a sharply increasing function of their size. There is no magic number like 15 or 30 or 75 billion dollars which we can stand; and above which we can't. Resolution and ingenuity can push the limits far higher than anything we have experienced in peacetime—if they have to be.

But the higher, the harder. Not only do high taxes, of any practical kind, have adverse effects on incentive, but past a point it may not be practicable or in some sense desirable to legislate a high enough tax²⁸ or stringent enough monetary and financial controls. Thus, the higher the budget the more likely it is that we will have to make the painful choice between open inflation and inflation suppressed by direct wage, price, and production controls.

We should reexamine our previous concepts concerning a good tax system. Beliefs regarding the best compromise between the claims of equity and of efficiency which were forged in a period when military budgets were low may no longer be applicable in a period when budgets are consistently high. The U. S. S. R. has been able to minimize the disincentive effects of high military budgets by more or less proportional taxes on consumption of a type which would be inconceivable here.

We need to know more, too, about the limits within which the analysis applied above has validity. I have no doubt that it has a great deal of validity; that inflation like that which the French economy has experienced since 1914 is economically debilitating; that taxation on the scale and of the type imposed in England now has serious disincentive effects.

On the other hand, there do seem to be circumstances in which quite high military budgets accompanied by high taxes and some inflation have positive or at least no deleterious effects. No one comparing the United States economy of the thirties with that of 1945-55 can fail to be impressed by the gain in strength and vitality. Was this gain in spite of, rather than because of, the \$100 billion military budgets of World War II and the \$50 billion budgets following the Korean war? Doubtless in some sense the answer is "Yes": still greater prosperity could have been achieved by other means involving smaller long-run economic risks. But as a practical matter, the other means were not found or applied. Static equilibrium analysis does not contain all the answers to problems of economic growth. A high level of activity is important as well as appropriate individual incentives. Nations can apparently benefit from shocks as well as from currency stability; they are not ruined by small doses of inflation, or even by the temporary use of price controls.

We need a better understanding of these economic problems and the implications for military budgets and the whole complex of related domestic economic policies. In the meantime, let us not be so bemused by good but incomplete economic theory that we run undue risks with national security.

2. *Effects of large-scale military activities.*—The United States economy has grown in strength during periods of large and fluctuating military budgets.

²⁸ The higher the budget the less likely it is to be balanced, and the less likely that mere balancing will be enough to prevent inflation.

Doubtless it can continue to do so if we manage our economic affairs even tolerably well.

It is also true that some national security programs, if well managed, can themselves make a significant contribution to economic growth. The most likely area in which to find such programs is research and development, the crucial military importance of which in the thermonuclear era I have already stressed. New ideas resulting from research are likely to have numerous and unforeseen applications, even the immense costs incurred in the development of the atomic bomb may eventually prove worthwhile on strictly nonmilitary grounds. While the total availability of scientific and technical resources would prevent us from ever devoting more than a very modest proportion of the military budget to research and development work, there are reasons for believing that national security and the economy would both be strengthened in the long run if we increased the present proportion, improved its allocation and management, and concomitantly took steps to increase our supply of scientific and technical talent. The Russians are undoubtedly devoting a much larger proportion of their scientific and technical resources to military work than we are; moreover, they appear to have almost as many technicians as we do and to be training new ones at a somewhat faster rate and of no lower quality. This rate should be more alarming to us, whether we are thinking of hot war or cold, than the rate at which they are currently expanding their capacity in basic industries.

But if some economic effects of large-scale military activities can be favorable, others I have no doubt are potentially harmful to our economic organization and institutions and our approximation of free enterprise in a free society. Consider Government contracting practices and ask how much free enterprise efficiency is likely to be achieved by the private firms operating under them. Consider the effect of security regulations, however necessary they may be, on technical communication and on employee efficiency among military research and production contractors. Consider the effect of Government personnel regulations and practices upon efficiency within Government agencies and over the wide economic sectors these agencies control or influence. And these are but examples.

I have no solution to offer to this major policy question of protecting free economy institutions from distortion by large-size Government activity, for which, after all, large military budgets are only partly responsible. But I do believe it is one of society's major problems. And I believe it is a most pressing problem in your consideration of domestic economic policy for national security. If we are so fortunate as to avoid hot, all-out war during the next generation, it would be desirable to believe that we should not have lost, in the interim, major portions of the free society.

Dr. BARNETT. This careful, lengthy analysis is, in my view, a superior performance in general on this subject, and as compared with the shorter statement I shall now make.

I shall identify the assumptions from which my specific views in large part derive.

(a) I assume that the wisdom of a governmental economic act or decision proposed as improvement of our defense must meet two criteria: it must produce an aggregate of defense benefits in excess of the costs or disadvantages; and the net benefit must exceed that from alternative acts which would be foregone if the contemplated decision were made.

(b) I assume that current economic decisions are made without certainty of whether there will be war, of when there might be war, or of what kind of war the next one might be.

(c) I assume the plentiful availability of weapons in the multi-megaton sizes, and assume no foreseeable progress in defensive weapons sufficient to prevent delivery of hundreds of nuclear bombs to target areas.

These assumptions make it essential, if rational economic decisions are to be made, to visualize four kinds of possible war and the likelihood of each. The four are: (1) no war; (2) peripheral wars; (3)

major world war without thermonuclear bombardment of cities; (4) unlimited thermonuclear war. I shall discuss each, in turn.

(1) The United States and Russia (and as time passes, this will be true of other nations) both have the capability of literally destroying each other's—or anybody's—urban and industrial society. Hence, I think that all nations will strenuously try to avoid major wars; and there is a possibility that they will be successful. As a way of avoiding war, the United States seeks to create a strong free-world alliance to stop Soviet political and economic expansion into Western Europe, the Middle East, and Asia. An appropriate question, then, with respect to any contemplated economic measure concerns its contribution to this United States strategy: Would the measure weaken or improve free world unity? If it would damage relations with other free nations, what is supposed to be the offsetting advantage? If it would strengthen the free-world community, what would be the cost?

These questions are not trivial—it is possible to believe that our free world alliances are of the same order of importance in containing Russia as the United States military strength *per se*.

(2) Consider now the second possibility: that Soviet expansionary adventurism will engage us in Korea-type wars at one or more points. What economic measures should we take to prepare for this contingency? Our need in this case—in which the battleground could be as varied as the Middle East, Indochina, the Balkans, or a polar area—is, first, to have flexible military forces and munitions properly positioned to contain such thrusts. Second, we need reservists and military supplies in readiness and strategically located, in the United States and elsewhere, to be able to supplement such forces in weeks and months. Third, we need help from other countries—both those attached and other allies. We need their economic and military strength, as well as the benefit of common aims.

(3) If any such limited military engagements were expected to spread into a World War II kind of action (still short of thermonuclear bombardment of cities) or if such a war came about in some other way, then there are needed, in addition, plans for massive conversion of the entire economy following outbreak of war. Such plans take the form of estimates of the national economic structure that would be required upon completion of mobilization after outbreak of war, and include the schedules by which, starting from the prewar economy, this is reached. Such planning is an essential prerequisite to stockpiles, subsidized industry, and other devices to overcome bottlenecks in the planned conversion schedule. It is sometimes urged that this or that industry should be kept in a state of high capacity and readiness suitable for full-scale war of the World War II type. Since such interference with free enterprise always involves costs, it is important to emphasize that particular industry assistance measures of this sort can be justified only if they are essential to avoid bottlenecks in mobilization schedules of massive economic conversion. If military plans do not pinpoint the bottleneck nature of such industries in the overall conversion, particular industry assistance might merely generate some fat in the economy, not closely related to anything.

(4) Finally, despite efforts to avoid war, to restrict war to small scale, and at least to restrict war to the nonsuicidal forms, there is the fourth possibility—that a war involving thermonuclear elimination

of cities and correlative radioactive poisoning of other large areas will take place. Sensible prewar economic preparations for this contingency are not likely to be similar to those required to avoid bottlenecks in World War II type conversions. For such a war involves the prospect of millions, perhaps tens of millions, of mortalities, and equivalent numbers of wounded and sick. At the same time, there will be wholesale destruction of essential water, food, medical, communication, transport, housing, and other services. I am sure that the military services have adequate plans for continued supply, from remaining munitions stocks, of such military forces as survive. But what the United States needs in addition are passive defense measures to reduce casualties, and preparations and plans to reconstitute a viable society out of the remnants of population and economic resources that survive. There will be little time or occasion for conversion of civilian industries to World War II type military output if an atomic war devastates the whole economy at its outbreak.

Each of the four cases in this spectrum—no war, peripheral war, repetition of World War II, and unlimited thermonuclear war—calls for different type military forces and different economic preparations. Even the national income of the United States is not large enough to support advance preparations for all conceivable contingencies. The task for military policy is to arrive at some combination of forces that is sensibly related to the probabilities. And economic policy must also be based on consideration of the specific probabilities, individually and in combination. Ultimately, both military and economic policy must be closely related to the war plans they are designed to support. How can it be possible for sensible economic measures aimed at improving our defense position not to be related to actual war plans and foreign policies?

It is possible that repetition of the World War II situation is viewed by the military as the most likely probability and is embodied in our military plans. If so, what is needed by public officials considering a plea of particular industry essentiality is examination of mobilization schedules and structure, and decision as to whether the industry would bottleneck massive economic conversion. If the bottleneck likelihood is apparent, then a variety of governmental remedies are possible—stepped-up military orders, standby capacities, accumulation of stocks, and other Government support measures. All the probable national costs, not merely those in the military budget, must be taken into account: impairment of the efficiency mechanism of the free-enterprise system by price interference, disturbance of relations with allies by foreign trade restrictions, and so forth.

But it is really quite difficult to believe, from a reading of public statements, that the military are preparing to fight World War II all over again. And if it is a new-type war, with modern weapons, that we visualize, then the relevance of World War II justifications of essential capacities in specific industries is not at all clear.

Further, it is clear from public statements that our relations and alliances with other free world countries are, next to the deterrent force, our major instrument for preventing Soviet expansion. Recourse to quotas and tariffs which would disturb these relations, both because of the specific economic effect and because of their foreign political repercussions, entail risking our security. There are two

questions I would ask myself about such proposals before believing they have to be adopted: Is it possible that the alleged defense essentiality is merely a convenient rationalization for narrower economic interest? Has a strenuous search been made for alternative remedies which do less damage to free world unity?

Representative BOLLING. Thank you very much, Dr. Barnett.

Dr. BARNETT. Thank you, sir.

Representative BOLLING. Our next witness is Dr. Henry David. Dr. David took his doctorate at Columbia University, has taught at several universities, including Columbia where he is now located. During World War II, he was director of research for the British Broadcasting Corp., and after the war was their adviser on American affairs. He has been associated with the National Manpower Council since 1951, where he is the Executive Director. He is the author of many books concerned with the labor problems of the United States.

Dr. David, we are happy to have you with us, and you may proceed as you wish.

STATEMENT OF DR. HENRY DAVID, EXECUTIVE DIRECTOR, NATIONAL MANPOWER COUNCIL

Dr. DAVID. Thank you, Mr. Chairman.

May I make it clear I am not speaking on behalf of the National Manpower Council. I was invited to contribute out of the studies and experience, some essential information on the manpower side of the story. My remarks are, therefore, based upon a point of view developed by the Council and the findings which have come about in the course of its investigations.

It seems to me, Mr. Chairman, that the whole nature of the essential character of certain skills has to be placed within a much larger frame, and I will merely comment upon 1 or 2 key points which are developed in the course of a statement I prepared. This larger frame, it would appear to me, becomes established by reference, first, to the nature of the country's skilled manpower resources, to the fact that they are developmental in nature, and that the character of skills is undergoing constant alteration; that there are a large number of ways in which skilled workers become developed in our society.

If one moves, then, to some notion of making estimates with respect to the future, it becomes important to understand what the significantly large number of variable factors are which have a bearing on demand and supply, demand for skilled workers in the first instance, and the sources of supply for fulfilling such demands. Next, related to that is the whole question of the nature of the assumptions that are made with respect to demand under a series of possible conditions in the future. And the final point, which is one which the Council has stressed repeatedly in its work, is that there are sensible and there are also other kinds of criteria which serve for the evaluation of manpower policies within our kind of society.

To save time, Mr. Chairman, it would perhaps be wise for me to say that the whole notion of the protection of certain groups of skills within the population in the same way that one can protect certain commodities or certain raw materials, by a system analogous to stockpiling, does not seem to make sense with respect to human skills.

That is, neither the skills themselves nor the workers within which they reside as a form of personal capital, can be stockpiled against future use in the same way that one might stockpile commodities.

I would move, it seems to me, to the notion that there is resident within the population at any one point of time a quite sizable stretch with respect to the development of the skilled manpower portion of the population, and this is a function of the fact that the largest proportion of our skilled workers develop their skills over time as a normal aspect of work experience. That is to say, we prepare relatively few people by highly formalized systems of training, either registered apprenticeship or some other form of apprenticeship. We supply very few directly out of vocational schools or technical institutes, and most workers acquire their skills during a period of experience in the labor market running from 5 to 10 and up to 20 years.

This is a normal aspect of work, because the changing of jobs, promotion, and seniority systems, on-the-job training, helper systems, team operations, all become part of the embodiment of certain selective skills within the work force. When, therefore, we have had unusually high levels of demand as in periods of national emergency, there have been ways of stretching the skilled labor force.

Another aspect of this, it seems to me, lies in the fact that existing job titles which are supposed to reflect levels of skill do so very inadequately in a great many cases; and so, at any one point in time, we have a number of workers classified not as skilled who are in fact skilled; a number of workers who are called skilled who are in fact performing routine, semiskilled operations. I stress this because it is very difficult to determine for any one small segment of the labor force within a particular industry what group is of a significantly essential character, in that the absence of relatively small numbers of them will be costly with respect to a total production system.

I think also, in relation to that, there is the important consideration that "skilled," so far as it can be defined at all within the labor force, has to be defined differentially; that is, there are groups of abilities, clusters of abilities, and certain levels of competence which a relatively small number of people possess, and which are not shared at large by the population. This is another way of saying that the base from which skill develops becomes the critical item. The higher the level of the base and the more solid the base, the easier it is to build skills on top of it, particularly under periods of great stress.

I would move from that to the point that we know far less, in spite of the very richness of our occupational data, about the nature of skill and skilled occupation in this country than we like to believe. We know far less about the relationship between changes in technology, capital investment, structure of the labor force and skill. This suggests that the easiest way, perhaps, to move policywise is to move essentially within the limits of our knowledge, and without respect to the changing factors which make our knowledge as limited as it is. We tend to act, therefore, by and large, against the experiences of the past and not, by and large, against the future, which, however dark it may be, we can make guesses about.

I stress this, because I can see no basis at all for thinking of essentiality—I am not talking from the viewpoint of manpower skills in terms of World War II experience or Korean war situation—with

respect to any future contingency where the terms of warfare are drastically altered, and I suppose it would be self-evidently clear that in the event of a very severe thermonuclear attack, that every conceivable kind of skill would be definable as essential within the circumstance in which the society would find itself.

This is another way of saying two very different things, it appears to me, Mr. Chairman: One is that the most sensible long-term approach against any future possible contingency would appear to lie in raising the total skilled level of the population, and to do this in terms of long-term measures rather than short-term devices which have a gadgeteering aspect to them.

The second point, it seems to me, that flows out of this consideration, is that there must be some relationship between the short and the long-term measures sought. Otherwise, one frustrates oneself across the board. We have done this in manpower policy terms repeatedly. We have pursued short-run policy in World War II with respect to deferment policies, particularly for college students; and we have paid the cost for it since.

We are now engaged in a highly competitive enterprise in which we try to deflect young men from medicine and other fields into engineering, young women from nursing into teaching, or from teaching into nursing, and this is a very interesting kind of "musical chairs" operation with very dubious gains for the society as a whole.

So I would move, then, to the last series of points I made in my prepared statement, Mr. Chairman, and that is with respect to the policy criteria. How does one evaluate manpower policies? It seems to me the first one of obvious importance lies in the fact that, first of all, the policies have to be supportive and complementary rather than contradictory and conflicting.

Next, that there is a very wide range of policies which have no immediate manpower objective, but which have very significant consequences for the development of the skilled manpower resources of the society. These run, as I suggested in my statement, all the way from taxation policies through to housing policies, and I might offer one simple illustration: You could effect a change in the antitrust laws which would permit small producers to combine their resources for training, which they cannot do now; and this would be a form of manpower policy, although a change in the antitrust laws would not normally be so regarded.

I would say, then, that there is the reverse side of the story. That is, what consequences do direct manpower policies have for other significant governmental policies? That is to say, you could pursue military manpower policies which would do nothing but frustrate foreign policy objectives. One could pursue manpower policies as in the case of a specific application of a tariff device to frustrate, it seems to me, international trade policy objectives.

Moving from that, it seems, I would mention, another criterion, the question of whether the policies adopted not only contribute to the greater strength of the Nation as a whole, but whether they also contribute to the individual well-being of the people involved.

And this is another way of saying that all manpower policies have to have some congruence with, at the very least, and, if possible, reinforce the democratic values of the society.

Representative BOLLING. Thank you very much, Dr. David.
(Dr. David's prepared statement is as follows:)

STATEMENT OF HENRY DAVID, EXECUTIVE DIRECTOR, NATIONAL MANPOWER COUNCIL

The National Manpower Council has been engaged in studying significant manpower problems since the spring of 1951, in an effort to contribute to the improved development and the more effective utilization of the Nation's human resources. The investigations it has conducted reaffirm the council's conviction that the future economic progress and the security of the United States, as well as the well-being of its individual citizens, will depend in large measure upon the posture that the Nation takes with respect to its manpower resources.

The council has, therefore, sought to stimulate the growth of a conscious and informed concern with the development of the skills, the capacities and the creativeness of the American people. It has emphasized that such a concern views each manpower problem which compels attention not narrowly on its own terms alone, but broadly, within the context of the Nation's human resources as a whole and with an awareness of the interrelationships which obtain among different manpower problems and policies. A narrow and fragmented approach to manpower problems has undesirable consequences to which the Nation has been relatively insensitive. Thus, the council points out in its report on A Policy for Skilled Manpower:

"In the past we have acted as if each manpower problem exists in isolation—whether it be the waste of potential ability and talent, shortages of teachers and nurses, or the adequacy of a community's facilities for training technicians. Consequently, we are easily diverted from a search for sound solutions for complex and difficult problems and tend to rely upon simple and shortsighted answers."¹

The council believes that a determined, many-sided, and continuing effort should be made to strengthen the country's resources of skilled and technical manpower. But it also maintains that such an effort, if it is to be successful, must be shaped by an understanding of (1) the nature of the country's skilled manpower resources; (2) the changing character of the skilled occupations; (3) the ways in which skilled workers are developed; (4) the significant factors affecting the demand for and the supply of skilled manpower; (5) the assumptions upon which estimates of future demand for skilled manpower rest; and (6) the criteria for evaluating the policies—both private and governmental and direct as well as indirect—that are relied upon to enhance skilled manpower resources.

This approach dictates a search for related policies that promise to raise the skill level of the Nation's working population as a whole, rather than uncoordinated actions designed to protect specific components of the skilled manpower segment of the labor force. The council, after a year and a half study of problems involved in the development of skilled manpower, concluded that:

Five major long-range objectives must be pursued if we are to strengthen the Nation's resources of skilled workers and technicians. These are:

To strengthen the contributions made by secondary education to the acquisition of skill;

To develop a more effective program for vocational guidance;

To provide more equal opportunities for all individuals to acquire skill;

To improve the facilities and methods used to train skilled and technical manpower;

To increase knowledge about our manpower resources.²

In line with these broad objectives, the council presented 20 concrete recommendations involving the secondary schools, industry, and the community, acting through various levels of Government and through voluntary organizations.

Skilled work is a relative concept. With changes in the minimum educational level, in technology, and in forms of economic organization, for example, accepted views of what kinds of work are skilled alter. Because there is no universally agreed upon measure of what constitutes a skilled worker, because of the diverse processes of skill acquisition, and because of inadequacies in labor force data, the dimensions of the country's skilled manpower resources can only

¹ National Manpower Council, A Policy for Skilled Manpower (New York: Columbia University Press, 1954), p. 19.

² Idem.

be approximately estimated. If skilled workers are distinguished from others on the ground that they "can competently perform tasks which require significantly differentiated abilities developed through specialized training over an extended period of time,"³ the number of skilled workers and technicians in the United States may be put at almost 9 million. There is approximately only one skilled worker for every 7 or 8 members of the labor force.

The number of skilled occupations is large, but most skilled workers are accounted for by only 10 occupational groups. Over half of those reported in the census as craftsmen, foremen, and technicians are employed in five occupational groups—as mechanics and repairmen; carpenters; foremen; machinists; and construction and maintenance painters. No single skilled occupation has as many members as the teaching profession, and many are smaller in size than such other professional occupations as engineering, medicine, and law.

Just as there are many workers whose job titles represent trades conventionally regarded as skilled, but whose actual work functions may be classified as semiskilled, so there are many workers engaged on tasks that require something less than the cluster of abilities and competences they possess. At any point in time, the skilled manpower resources available to the Nation are not, therefore, accurately represented by the number of workers employed in jobs classified as skilled. Because of the ways in which skills are acquired in the United States, there is a potential supply of skilled workers which can be tapped should it be necessary. On the other hand, because a very extended period of training time is essential for the acquisition of certain abilities and competences, imbalances will occur between the demand for and the supply of some groups of skilled workers, particularly when sudden increases in demand reflect striking changes in technology requiring relatively new skills.

Changes in the common cultural and educational base upon which significantly differentiated skills rest, in scientific knowledge and technology, in economic organization, and in still other factors are responsible for the destruction of handicraft skills, transformations in the skill content of old occupations, and the appearance of new skilled occupations. In recent years, new groups of technical workers have come into existence in the medical field, and such industrial fields as chemicals and electronics have witnessed the emergence of new types of skilled workers. Employers emphasize the need for skilled workers whose abilities are convertible to new requirements and who are flexible enough to adapt to the changes which mark so many traditional skilled occupations. In estimating some of the implications of current and likely future developments for skilled manpower, they point out that "Automatic machines will require highly skilled maintenance and repairmen. Atomic generators will require maintenance men who are more skilled than at present. Many of today's electricians will have to learn electronics if they are to retain their skilled status. Pipefitters will have to learn hydraulics. A skilled worker who formerly measured with calipers and now uses a micrometer will have to learn to work to tolerances measured by light waves."⁴

Changes in skill requirements are the marks of a dynamic economy. They are reflected in turn in imbalances between demand and supply, in alterations in educational and training facilities and needs, in new relationships among differentially skilled groups in the labor force, and elsewhere. Any attempt to reduce the likelihood of costly shortages of highly skilled workers in the future must look far less to the preservation of existing skills by insuring that workers continue to perform the tasks for which their acquired abilities and competence equip them, than to ways of facilitating successful overall responses to changing skill requirements. It is quite clear that neither skills nor the workers in whom they reside as a sort of personal capital can be stockpiled like commodities for future use.

The variety of ways in which individuals become skilled workers emphasizes the importance of the base upon which the differential abilities and competence which distinguish them from others are built. The higher and the more solid that base is, the greater are the chances for skill development and the easier skill development becomes. For the vast majority of workers in the skilled occupations, secondary education is terminal. The amount and the quality of that education play a determining role in later skill acquisition, and it was for this reason that the National Manpower Council stressed the crucial role of the secondary schools in strengthening the skilled manpower resources of the country.

³ *Ibid.*, p. 48.

⁴ *Ibid.*, pp. 107-108.

Perhaps the sharpest illustration of the relationship between basic education and training for more specialized skills is to be found in the Armed Forces. The rejection rates for military service are high in those regions of the country where the opportunities for education and the quality of elementary and secondary education are most limited. Each young man examined for military service is placed in 1 of 5 mental groups on the basis of the score achieved on the Armed Forces qualification test. Those who fall into group V are rejected for service and those who fall into group IV are considered unsuitable for advanced training in the armed services, chiefly because of inadequate education. For the country as a whole, about one-third are classified in groups IV and V. In the Southeastern States, where educational standards are below those of other regions, better than half of all the young men examined fall into these groups. The higher the proportion of young men in a region graduating from high school, the higher the proportion classified in the top two mental groups. Thus, in the Far West, where 3 out of 5 young men graduate from high school, better than 2 out of 5 examined are placed in groups I and II. In the Southeast, where 3 out of 10 young men are high-school graduates, only 1 in 6 scores well enough on the Armed Forces qualification test to fall into these two groups.

The significance of the educational base in the development of advanced skills is suggested by the fact that at least three-fifths of all skilled workers and technicians today acquire their distinctive abilities and competence through some kind of informal training which is a part of their work experience. Less than two-fifths have any contact with an apprenticeship program of one kind or another. Immigration is responsible for a relatively small number of skilled workers and the vocational schools, technical institute, and junior and community colleges directly contribute other small groups to the total supply of skilled workers and technicians. The occupational structure in industry and the investment made in training by employers combine with systems of promotion and changing jobs to facilitate informal skill acquisition. To a striking extent the development of skilled workers is, so to speak, a natural aspect of work experience for those individuals who put forth some effort to move up the skill ladder. Most new entrants into the labor force begin with jobs that are not classified as skilled, and the common process of progression is likely to contain the following steps: "training and experience in a given job; exposure to the work of more skilled workers; incidental experience in the next higher job; accumulation of seniority; and some specific training, usually in connection with promotion, if it is needed."⁵ The opportunities for skill acquisition in connection with military service also enter into this general picture of skill progression.

In connection with this brief comment on the ways in which workers become skilled, it is worth noting that problems of skill development assume a different guise if they are contemplated from the vantage point of national requirements, however they are estimated, or from that of employers who need particular kinds of workers. The latter determine the nature and scale of their investment in skill training in the light of the profitable operations of their firms and of their estimate of the extent to which market conditions make it relatively easy or difficult to meet their manpower requirements. In expanding industries subject to fairly rapid innovations in technology, as in the electronics field, employers in a tight labor market are under heavy pressure to make a sizable and effective investment in training. In different circumstances, on the other hand, there may be no compelling reasons of immediate self-interest to prompt employers to provide training facilities to meet possible future manpower needs. "The responsibility for building a labor force which facilitates long-run economic development and is readily adaptable to the requirements of full mobilization must be shared by the many individuals, groups, enterprises, and public institutions which play a part in the development of skilled manpower resources."⁶

It has already been suggested that the level of demand for skilled manpower is dependent upon the interplay of a number of factors. Changes in capital investment, production techniques, materials, commodities, defense appropriations, expenditures for research and development, utilization practices, and other factors, to say nothing of the level of demand for goods and services, all have greater or less consequences for the demand for skilled workers and technicians. The forces at work conditioning the supply of skilled workers are no less varied. The family setting; the economic characteristics of the community; the prestige which the society attaches to different occupations; access to opportunities for

⁵ *Ibid.*, p. 217.

⁶ *Ibid.*, p. 265.

education and training; the amount and quality of education; vocational guidance and counseling; military service; the general level of employment; on-the-job training opportunities; union policies with respect to membership; the way systems of promotion and seniority operate; the wage structure—all these have an impact upon the development of the supply of skilled workers.

Under conditions of national emergency, as in World War II, when considerations of cost are secondary, many steps can be taken to expand the supply of skilled workers or to reduce the demand for them. Thus, in World War II, special skilled worker training programs were established by industry and the Federal Government; semiskilled workers were upgraded on the basis of brief training periods; and work functions and assignments were drastically altered. "The tasks of skilled workers were broken down and assigned to a group of workers, each of whom had only limited training. Large groups of semiskilled workers were built up around cadres of skilled workers. Many skilled workers were shifted from production to supervisory or preproduction jobs. * * * Actual production was then carried out by semiskilled workers."⁷ The experiences of the war years showed that severe imbalances between demand and supply could be reduced by reassigning work functions and expanding the scale of training activities. There was, however, an upper limit to the successful application of measures of this sort. Many skilled jobs did not lend themselves to subdivision or to mechanization, and could not be learned through intensive short-run training periods. This was the case in certain jobs in tool and die making, pattern and model making, repair operations, and elsewhere.

Recognition of the many variables that influence the demand for and the supply of skilled manpower underlines the difficulties which are encountered in attempting accurate estimates of future requirements for skilled manpower. Every forecast rests upon a series of assumptions which stipulate certain conditions and in effect fix the influence which key variables will exercise. Forecasts of future total requirements for skilled manpower require in the first instance an estimate of the level of demand for goods and services under given conditions—such as reduced international tension, partial mobilization, all-out nuclear war—for each sector of the economy and in each industry. "Preliminary estimates of changes in the employment of different kinds of skilled workers in each industry can then be made by assuming that the number of workers in each occupation will change in direct proportion to anticipated changes in the demand for the industry's goods and services. Reasonably accurate forecasting, however, requires an additional step. Each industry must be analyzed in terms of the forces which influence its occupational structure, including changes in the level of production and employment, changes in the distribution of production and employment among the various firms, the availability of different types of manpower resources, and the impact of technological change."⁸

What is presently known about the relationship between changes in technology and changes in occupational structure permits only the broadest kind of generalizations about the manpower consequences of what is popularly called automation. It is reasonable to assume that the introduction of increasingly automatic systems of production and the mechanization of office workers will reduce the demand for semiskilled operatives and clerical workers engaged in narrow, routine tasks, but increase the demand for highly skilled, versatile workers to plan, produce, install, maintain, repair, and control the new self-tending and self-directing equipment. What is likely to happen in any one industrial field or in a particular enterprise may constitute quite another story, for this will depend upon the precise applicability of the principles of automation and the time-scale of the innovations in technology.

Quite apart from the premium which automation promises to place upon new types of technicians, there seems to be ground for assuming that it "will lead not only to an increasing proportion of skilled manual workers in the manufacturing work force, but to an absolute increase as well."⁹ The evidence is clear that many jobs in industry will be sharply upgraded in consequence of automation, but this does not imply that the people in those jobs will be upgraded.

Estimates of manpower requirements under conditions of total mobilization encounter the stubborn fact that past experience provides no reliable bases for

⁷ *Ibid.*, p. 76.

⁸ *Ibid.*, p. 85.

⁹ George B. Baldwin, *Automation and the Skills of the Labor Force*, National Manpower Council, *Improving the Work Skills of the Nation* (New York: Columbia University Press, 1955), p. 91.

forecasting the course or consequences of nuclear warfare. More or less reasonable assumptions may be made about manpower requirements and the nature of essential or critical skills in the event of another limited conflict like that in Korea. But neither that experience nor the lessons of World War II provide solid foundations for forecasting manpower requirements if the Nation is subjected to nuclear attack. The most sensible safeguard against such an eventuality seems to lie in a determined effort to lift the skill level of the population as a whole.

The manpower resources of the Nation can be affected by an almost bewildering variety of policy actions, both private and governmental. Any single policy action, consequently, has to be appraised in terms of its relationship to other direct manpower policies, in order to determine whether it is, by and large, complementary and supportive, or contradictory and conflicting. Thus, it would make little sense, to take a hypothetical case, for the Federal Government to pursue a policy of providing scholarship funds for college students and at the same time abandon the policy of student deferment. Similarly, it would be of dubious worth if a trade union pursued a policy of encouraging the expansion of apprenticeship programs, in order to strengthen the skill resources of the Nation, while it also barred from apprenticeship persons of color. If the Nation seeks to strengthen its manpower resources, it becomes essential to ask whether the policy it pursues with respect to immigration contributes to the realization of this purpose.

Manpower resources may be affected by a range of policies which have no direct manpower objectives, such as taxation, soil conservation, antitrust, and housing, to cite several. Manpower policies in turn have high significance for the Nation's defense and foreign policies. It is appropriate to ask, consequently, what bearing the use of tariff policy to protect a segment of the skilled labor force has for a whole complex of other national policies. The device invoked to preserve the skills of a small number of workers in the domestic jeweled watch industry against a future contingency has to be evaluated in the larger context of foreign policy in general and international trade policy in particular. The application of this device to other industrial fields would certainly require an estimate of its consequences for the manpower resources of the allies of the United States and also of the neutral states from which essential products are imported.

In this context, the observation made by the chairman of the National Manpower Council, Mr. James D. Zellerbach, in addressing a meeting of the American Paper and Pulp Association, is relevant:

"A substantial part of our trade restrictions * * * undercut our foreign policy. On the one hand, we urge our allies—with words and money—to develop greater economic strength so they can stabilize their governments against internal Communist subversion and so they can contribute more men and weapons to the common defense against external Communist aggression. On the other hand, we maintain trade restrictions which handicap our allies in developing the very economic strength we are urging on them."¹⁰

The other reference points to be invoked in evaluating specific manpower policies are, perhaps, sufficiently self-evident to require nothing more than their statement. One is the relationship between their short- and long-run consequences. A second is the degree to which they contribute to the development of the potential capacities of the individual, as well as to the strength of the Nation as a whole. And, finally, there is the question of the extent to which they are congruent with and reinforce democratic values.

Representative BOLLING. The next witness is Dr. Raymond Vernon. Dr. Vernon took his doctorate at Columbia University, and served in the Securities and Exchange Commission. After the war he joined the State Department as Assistant Chief of the International Resources Division, was an adviser on commercial policy, and finally, headed the Office of Economic Defense and Trade Policy. He was a staff member of the Randall Commission, and until recently was the planning and control director of Hawley & Hoops, Inc. He has

¹⁰ James D. Zellerbach, *Our Stake in World Trade*, an address delivered February 23, 1955, pp. 3-4.

served our Government in missions to Japan and to GATT meetings at Geneva and Torquay. Now he is both a lecturer at Swarthmore and the new director of the New York Metropolitan Regional Study. He is the author of several studies, including a recent article in the magazine *Foreign Affairs* which was concerned with our topic for today.

Dr. Vernon, we are happy to have you with us, and you may proceed as you wish.

STATEMENT OF DR. RAYMOND VERNON, DIRECTOR, NEW YORK METROPOLITAN REGIONAL STUDY

Dr. VERNON. Thank you very much, Mr. Chairman.

I am afraid it is the fate of the fourth man up, in a program of this sort, to begin to verge on the repetitive. I shall try to avoid this as much as possible, but probably won't succeed altogether.

To begin with, I share Dr. Barnett's preoccupation as to the kind of war which we think we are preparing for when we consider the question of a defense mobilization base, and I accept his four-way classification of no war, small wars, large-scale conventional war, and thermonuclear war, as probably exhausting all the possibilities.

What I would like to stress in connection with this four-way breakdown is that as far as the small war is concerned, I expect there is really no problem of an adequate mobilization base. I would assume that an action varying from a police action in the Middle East to perhaps a Korean-scale conflict can be taken on by the United States with no more than marginal shift in resources, and with the use of a very, very minor degree of governmental controls in order to meet the demands of the emergency.

As for conventional wars; well, I don't know what the word "conventional" means in the context of 1956. I think we tend to think in terms of a 1945 kind of conventional war without taking into account sufficiently the possibility that even in such a war there would be direct bombing of the cities of the United States, substantial dislocation of a kind with which England and Germany and the Soviet Union were visited in World War II.

Thermonuclear wars are a problem for the imagination, and one has to really have a macabre bent, I suspect, if he can adequately imagine what is likely to take place if that develops.

I would like to point out in connection with these alternatives that most of our thinking with respect to an adequate mobilization base starts with the unspoken assumption that there will be both time to process materials, and circumstances in which materials can be processed.

This is an assumption which bears a little looking at. If, as a matter of fact, there will not be time to process materials or there will be such civilian dislocation that materials cannot be processed, then one begins to ask oneself what the relevance is of stockpiling raw materials which one may not be able to move and process, what sense it makes to maintain factories in being close to the centers of population which cannot readily be used, and so on.

In short, what I am suggesting is that the whole concept of the adequate mobilization base turns upon an assumption which at best is

subject to considerable question: the assumption that we will be able over a period of months, perhaps a period of years, to change copper, lead, and zinc ores into metal, to shape that metal into the pieces that go into a watch, and to assemble those pieces finally into a watch.

Now, the probability that we will be able to do this is raised in question by a number of facts. One is the fact that about 15 metropolitan centers account for a little better than one-half of United States industry. It has been suggested in various articles of apparent reliability on the subject, that a 200-bomber raid, even if subject to a 50 percent rate of interception by our defense facilities, could still destroy roughly half of the United States industry in 1 raid.

This statistic, if it is at all reliable, has to be considered in conjunction with the question whether we would have the time and the opportunity and the circumstances to process materials. If the facts suggest that this would not be so, then our defense mobilization base takes on a rather different turn.

Then the defense mobilization base has to be conceived of in terms of the stockpiling of finished goods at places sufficiently close to their point of final use that they can in fact be utilized in an emergency; and I can envisage us, then, stockpiling tanks and guns and planes—which, by the way, would probably be obsolete before they were used—and hospital kits, and so forth, at points where they were expected to be used rather than stockpiling factories, copper, lead, and zinc, and so on.

It has been suggested from time to time that perhaps this difficulty of the concentration of United States industry can be met by dispersion, and there have been what I take to be rather unrealistic efforts to create a degree of dispersion in the United States through the acceleration amortization of plants, through the careful placing of defense contracts, and so forth.

I think it is fair to say, as a generality, that all of these measures have had scarcely any visible effect and are unlikely to have any visible effect, and we must assume that the distribution of United States industry geographically at the time of the outbreak of war would be what it is today.

Is worldwide dispersion a possibility? Well, I don't know. The possibility that worldwide dispersion might assist us in our defense is, I suspect, a problem on which even military men would disagree, because it would require the dispersion also of our defense facilities, our interceptor planes, our antiaircraft, and so on.

But if worldwide dispersion is a possibility, then again the concept of the adequate mobilization base takes on quite a different turn. If we must conceive of our defense plant as being spread over the 4 corners of the globe, there are 2 implications for an adequate mobilization base:

First, everything we do must be aimed at insuring that the areas in which this mobilization base is now spread are friendly to our cause, and all of the actions we take obviously must be designed to keep these four corners of the earth on our side.

And, second, import restrictions and similar measures can no longer be unilateral; they must be multilateral, they must be fit into a plan which has the ultimate effect of dispersing industry in the pattern which we conceive as desirable for our defense.

Whence, I conclude that on any calculation of the probable shape of the war into which we may be projected, unilateral import restrictions seem altogether irrelevant, and what the affirmative policy should be in its place is something which to me, at least is a little obscure at the moment.

On the other hand, I have a kind of sneaking sympathy for the point of view which says, "Well, never mind all this, we can't really forecast the shape of wars. We have to look to the possibility that the United States might ultimately be something like an arsenal of democracy in the manner in which it functioned in World War I and World War II. Besides, the first duty of a sovereign is always to be able to protect its people in an autarkic sense, and therefore let's see whether the United States, with its back to the wall, can in fact defend itself."

Let's look at that proposition for a moment, and see what policies it leads to. It would seem to me at the outset that a policy of restricting imports of raw materials from other nations in times of peace—during a period in which most of our raw materials, when used, go into washing machines and automobiles and similar consumer goods—comes close to being the height of absurdity. The exhaustion of our dwindling copper resources, lead resources, zinc resources, Mesabi iron-ore deposits, and petroleum for consumer use now, with the result that they will not be available in time of war, is a kind of Alice in Wonderland policy.

I am aware of the arguments on the other side, and I think they have just enough weight so that they cannot be dismissed out of hand. The contention that abandoned mines flood, that they are not available in wartime if they have not been used in peacetime, is something that must be looked at product by product to see whether it has meaning in any individual case; but I have a strong suspicion, which verges almost on certainty, that if we looked at this proposition case by case, we would determine that the rapid utilization of our own raw materials to the exclusion of foreign materials would in the end put us in a situation, in time of war, in which these materials would be available in lesser quantity rather than greater quantity, than otherwise would be the case.

Now let us turn to skills. It has been suggested, indeed, a part of the rationalization of the contentious provisions of the Trade Agreements Act we are discussing this morning is based on the assumption, that skills in a sense can be stockpiled. And here one gets into a confusion of terms and into a confusion of notions as to what kinds of skills we are talking about.

The emphasis in the hearings under the Trade Agreements Act and in other forums in which this problem has been discussed, has been upon production line skills, upon lens grinders, upon watchmakers, and so on and so forth. My own view is that the skills that we are really concerned with are managerial and entrepreneurial skills, supplemented by engineering skills of a very, very high order of proficiency, if you like.

What we are concerned to be able to do is what the Germans succeeded in doing during the war. We are concerned to be able to substitute plastics for tinplate, if we have to. We are concerned to be able to make parts of tanks in a candy factory. We are concerned

to be able to take unskilled persons and to reshuffle our job requirements in such a way that these unskilled persons will be able to produce high precision tools of various sorts.

The essential ingredient for this purpose is not the lens grinder who has devoted 20 years to lens grinding, nor the watchmaker who has devoted most of his life to watchmaking. The essential skill for this purpose is engineers, chemists, entrepreneurs, and managers who have the facility for pulling together bits and pieces and making them work in contexts which normally would be almost impossible.

In short, we don't want rigid skills. We don't want skills that are not substitutional. We want the skill to be versatile, a skill which is the antithesis of the watchmaker or the lens grinder who have devoted 20 years simply to that occupation.

Now let's see for just a moment what the impact of foreign trade may be upon this body of skills. To begin with, I suspect either the presence or the absence of foreign trade does not greatly affect the bundle of skills that the United States has. But insofar as it does affect those skills, its impact, as I see it, is roughly this: In industries in which the United States at the present time relies upon a high labor content of skill, high labor costs, the effect of imports must be, it seems to me, to reduce that reliance on high labor content.

How does the photographic industry meet the problem of increased imports? It meets the problem of increased imports by redesigning its method of production in such a way that it no longer needs to rely upon \$2.75 labor, but, instead, can substitute a machine for that labor and therefore cut its costs. This is precisely what we want our defense industries to do if we wish, in another emergency, not to have to rely upon highly developed pools of skill of a production-line type.

Therefore, I would suggest that foreign trade, imports of watches, lenses, and cameras, have the effect of shaping up United States industry so that it is not so reliant upon these precious bundles of production skill, and can get along without them or can get along with them to a lesser degree. From that point of view imports are salutary, not objectionable.

I would suggest, also, that since imports mean a larger volume of exports, and since our exports tend to be in the highly fabricated goods, such as chemicals, trucks, agricultural equipment, pharmaceuticals, and so on, the effect of increased foreign trade is to shift the use of our manpower and capital precisely to those quadrants or portions of American industry in which we would like to see them go for purposes of defense.

To begin with, the end products of these export industries of ours are far more relevant to a defense effort than most of the end products associated with domestic industries exposed to considerable import competition. What is more, the bundle of skills needed to make chemicals, trucks, and so on and so forth, is far more relevant to that versatility, that adaptability of which I spoke earlier, which would be essential in meeting an emergency.

In short, more imports, as I see it, would turn us from a nation of lens grinders, watchmakers, lace weavers, hatmakers, and so forth, to a nation of chemical producers, truck makers, and so on; a structure of industry, as I said before, far more relevant to defense.

My final conclusion is, therefore, that the concept of the adequate mobilization base, as conceived of in the Trade Agreements Act, may be irrelevant but insofar as it is relevant, it is helped rather than hurt by increased foreign trade.

Representative BOLLING. Thank you very much, Dr. Vernon.
(Dr. Vernon's prepared statement is as follows:)

STATEMENT OF RAYMOND VERNON

There was a time, within our generation, when a nation could make its preparations for war with some reasonably firm assumptions as to the nature of the war it might fight. Today, of course, this is no longer the case. The form which future wars will take is problematical. Yet we cannot undertake any serious consideration of the "mobilization base" concept unless we have at least some common view of the forms of warfare for which the "base" is being developed.

THE WAR WE FACE

I shall not dwell too long on the alternative forms of warfare which this Nation faces. This committee will no doubt hear testimony on the subject from persons better qualified to have views on the subject. At the risk of oversimplification, however, there seem to be three possibilities: "small wars," ranging in size from a policing action in the Middle East to another Korean conflict; larger-scale nonnuclear wars, somewhat deadlier in impact than the World War II pattern; and thermonuclear wars, involving an unreal and barely imaginable holocaust.

I may be oversimplifying once again if I say that the small-war possibility offers no serious problems for defense mobilization; this kind of war can be fought, as the Korean war was fought, with no more than a marginal shifting of our resources from consumer hardware to military hardware. If this were the only form of war for which we were concerned to prepare, no significant problem of the "mobilization base" would exist.

The second possibility—that of the large-scale conventional war—is one which many military men believe to be a real possibility still, but one which is becoming less likely with each passing day. As the Soviet Union and the United States reduce the size of their manpower under arms; as they begin the development of "tactical" weapons with nuclear warheads; as they begin to use nuclear energy for powering submarines and other naval craft; as these developments occur, the distinction between nuclear and conventional warfare fast begins to blur and the likelihood that one or another adversary will use thermonuclear weapons in the initial attack or as the tide turns against him continues to grow. Large-scale conventional warfare, therefore, may still be regarded as an alternative but as one of decreasing probability.

This leaves the great unknown—thermonuclear warfare—as the kind of eventuality to which the defense mobilization base concept seems most relevant. It may be worthwhile, therefore, to consider how much we really know of the kind of mobilization base thermonuclear warfare calls for.

THE MOBILIZATION BASE IN THERMONUCLEAR WARFARE

If the war for which our mobilization base is being readied is a thermonuclear war, the first question for which an answer is needed is whether such a war can be expected to last for many months and whether our civilian populations will be able to engage in the continued large-scale processing of materials into finished hardware during the course of such a war.

The importance of this issue, of course, stems from the fact that most concepts of an "adequate mobilization base" are meaningful only if one is thinking of a prolonged war and only if civilian production is possible during its course. The efforts of Government defense agencies to stimulate the domestic production of scarce raw materials such as mica, mercury, beryl, monazite, tungsten, antimony, and talc, as a supplement to stockpiling, are inescapably based upon the assumption that hostilities would be of long duration—many months or perhaps years—at any rate long enough to mine and refine these materials, to process them into end products and to deliver them to their point of use. The United States Government stockpile program, in accordance with which minimum supplies of

scarce raw materials are being stored for use, is also based upon the assumption of many months of war. Similarly, the concern for maintaining adequate domestic watchmaking, lens-grinding, and heavy electrical equipment facilities also seems to imply that future wars might well last a considerable time.

Whether these are realistic assumptions is something for experts in nuclear warfare to determine. But if the answer is that the outcome of the war would have to be decided in a relatively brief period, then our concept of the "mobilization base" would need a drastic overhauling. For then our defense problem would be primarily how to stock the end products—guns, planes, clothing, food, and medical supplies—in sufficient quantities at points near their place of use, to be available in the period while the war's outcome was still at issue. The availability or absence of talc or antimony in this brief period would hardly be relevant.

The chances are that the possible length of a nuclear war will depend in part on the size of the battlefield. Warfare concentrated by the enemy upon the continental limits of the United States could not be expected to last for very long. Then whether or not our watchmaking establishments were fully equipped and ready to produce would have very little bearing. This, at least, seems the almost inescapable conclusion in much of the published analysis to date.

To begin with, the greater part of our industry is concentrated in a relatively small land area. Five metropolitan areas account for over 30 percent of our total industrial production, 15 account for 45 percent of all our manufactures, and 52 percent of our hard-goods manufactures. The instrument industry, which includes the watchmaking industry, has 52 percent of its production in 3 cities. Nor is there any evidence that the recent public disclosure of the damage potentiality of nuclear weapons is doing much to affect this picture. On the contrary, experts in plant location are constantly struck by the low priority which American management places on bombing risks as a factor in the selection of new plant sites.

At present no program exists which gives promise of any greater dispersion of our industrial plant on D-day than exists at present. The governmental devices available for the encouragement of geographic dispersion are not of sufficient consequence to matter very much in the general pattern of industrial growth. Certain limited types of plant—those immediately associated with defense production—may be entitled, in effect, to a postponement in the payment of some of their taxes by the availability of accelerated plant amortization. The location of a plant may also be influenced in a few cases by governmental policy in allocating contracts. But that is all. In an economy devoted to the principle of free private enterprise it is difficult to envisage a domestic program in peacetime vigorous enough to affect this pattern very much. We must assume that the American industry which faced a nuclear attack at the outbreak of war would be distributed in much the same pattern as it is today.

On this assumption the published analyses provide cold comfort. It is estimated, for instance, that even if our air defense could be raised to a level at which half the attacking bombers could be intercepted, a few hundred bombers could destroy about half our industrial capacity. In addition, the fallout phenomenon would have to be reckoned with; actual or potential lethal fallout areas created by nuclear explosions have been variously described as running from over 2,000 to 100,000 square miles. On these facts it could well be that substantial reliance upon United States industry in wartime is no longer a realistic basis for planning.

Perhaps the concept of an adequate mobilization base might still have meaning, even in nuclear warfare, if industrial facilities could be sufficiently dispersed through the whole of the free world. It is not at all self-evident, however, that such dispersion would reduce the vulnerability of our industry to attack. For the dispersion of such facilities would call as well for the dispersion of the planes and other devices for their defense. Moreover, on almost any assumption as to the geographical pattern of such dispersion, the need for transportation probably would increase. Whether these factors would add to or detract from the vulnerability of our industry probably involves some very complex military judgments which others will have to provide.

At any rate, if the experts saw merit in greater industrial dispersion over the free world, this could have at least two implications for our adequate mobilization base concept. First, we could not plan such a base without bringing our prospective allies into the plan. This would mean, in concrete terms, that, although our mobilization base planning might be begun in our Office of Defense

Mobilization as it is today, it would be completed perforce in the appropriate councils of NATO. The simple monolithic concept on which ODM now operates, that the defense mobilization base consists primarily of the availability of raw materials to the United States and of the availability of processing facilities within the United States would have to be changed into a concept much more in accord with the complex facts of our present military alliances and our apparent military strategy.

The other implication of a global defense mobilization base is that the unilateral imposition of import restrictions in the name of defense would no longer be a measure compatible with the mobilization-base concept. On the contrary, if the experts concluded that our chances of survival and effective counterattack in thermonuclear warfare would be increased by the global dispersion of our resources, we would simply have to accept the seeming corollary that any measure which weakened the alliance was striking at the core of our defense. Our military leaders accept this fact already. In due course, perhaps, our economic mobilizers may come around to the same viewpoint.

AUTARKY AND THE MOBILIZATION BASE

It may well be pointed out, nonetheless, that the United States owes it to itself to be prepared for the last-ditch alternative—the possibility that only the United States would be in a position to produce for the free world; or the even more frightful possibility that the United States may be isolated from its allies and compelled to continue its fight alone.

As one surveys the globe in the modern perspective of the intercontinental bomber and the projected intercontinental ballistics missile, the possibility that the United States could perform its traditional role as the “arsenal of democracy” once it were isolated from its allies seems to be wildly untenable; the air-mile distances from the northern tip of the Soviet Union over the Arctic wastes to Chicago seem distressingly short. But laymen may err in so complex a judgment and it could well be that self-sufficiency in production is still a relevant objective for modern warfare. In that case, we must look closely at the question whether a policy of reducing imports of commodities which do not seem to have a “satisfactory industrial mobilization base” strengthens or weakens this Nation as a war-beleaguered arsenal.

In the raw materials field, the case for restricting imports of critically short raw materials seems, on first glance, to be close to absurd, for such a policy would appear to reduce our reserves even before hostilities had begun. But this may be regarded as only a superficial reaction, since the size of the domestic supplies of an exhaustible raw material available in an emergency depends on a number of factors. Exploitation in peacetime will, of course, reduce the supplies available in wartime, but peacetime imports can also reduce the amount which an economy could readily produce in wartime. For in a market economy, the reduction of domestic production is usually accompanied by the abandonment of diggings, which sometimes reduces domestic reserves through flooding, cave-ins and the underground leeching of deposits. The dispersal of a trained work force and the scrapping of mechanized equipment also reduce production potentials, at least until mines and processing plants can be put back on an operating basis. And the curtailment of domestic operations, whenever it is accompanied by a decline in exploration and in the proving out of added reserves, has a like adverse effect.

The relative importance of these conflicting forces differs from one commodity to the next, but some preliminary generalizations may be justified. In the case of crude oil resources, a prima facie case seems to exist that the heavy draining of domestic reserves through consumption has been offset, at least up to the present time, by the stimulus which such consumption has given to the full utilization of such reserves and to added exploration. Proved reserves of petroleum in the United States, which represented about 12 years' supply in 1921, have risen fast enough since that date to maintain roughly the same relation to consumption in 1955.¹ This is a remarkable record, achieved in the face of a persistent concern that our reserves may finally peter out. The question is whether we want to risk our self-sufficiency by assuming this performance will continue.

¹ See Report to the Joint Committee on Atomic Energy (84th Cong., 2d sess., 1956), vol. I, p. 42.

But there have not been many commodities in which domestic reserves have kept pace with domestic needs. In the next decade or two, allowing for continued exploration and for the development of substitutes, our domestic reserves of manganese, copper, lead, mercury, zinc, uranium, vanadium, tungsten, antimony and sulfur can reasonably be expected to decline, both absolutely and relatively to consumption; or, to put it more precisely, the real cost of extracting usable ores of these types from domestic sources is likely to increase very rapidly if we continue to draw upon domestic reserves to supply our growing civilian economy. In an emergency, we would probably have to divert inordinate quantities of badly needed manpower and equipment to supply our needs or to fashion substitutes. The economic loss in foregoing foreign sources of such materials in peacetime could be very high.

However, as we suggested earlier, import restrictions in the interests of defense have been proposed and applied not only with respect to raw materials but also with respect to fabricated products whose manufacture requires difficult skills. To maintain these skills in being, it has been argued, domestic manufacturers must be allowed to operate at some minimum level of production; otherwise, the skills will be almost irretrievably dissipated into other occupations. This contention, of course, underlay the jeweled-watch affair but it has also been claimed repeatedly for other industries as well.

Any industry may be pardoned for contending that it provides the vital nail on which hangs the kingdom's fate, but mobilization planners must go deeper into the facts. The blitz experiences of World War II illustrated again and again the general proposition that the ability of industrial nations such as Germany, the Soviet Union, and Japan for emergency improvisation is extremely high. Where, as in the United States, the industrial craftsmen facing foreign competition constitute a minute fraction of the skilled labor force, we are dealing with mobilization factors which may have minimal importance.

This is not to belittle the importance of generalized machinist, engineering, scientific, and managerial skills in wartime. On the contrary, such skills are absolutely indispensable to flexible production in an emergency. These are the skills which turn washing-machine factories into bomb-casing plants and which find a way to use plastic for tinplate. To foster them is altogether consistent with the needs of wartime production.

But the skills of the manager and the engineer are fundamentally different in character from the skills for which protection is being sought. The claim for protection is being made for production-line skills, for glassblowers, watchmakers, cable winders and lens grinders—the little pools of skill which run to specialization rather than to flexibility and which are relatively incapable of being applied in other industries. And the evidence of past wars suggests that craftsmen of this sort are relatively dispensable.

As a matter of fact, there is every reason to suppose that, in an emergency, our capacity to produce by unorthodox methods products which had previously been regarded as requiring high degrees of specialized skill would exceed that of the Soviet Union and Germany, remarkable as were the accomplishments of these nations. Our capacity in this respect was illustrated in World War II when aircraft construction, lens manufacture, and many other types of production previously regarded as the craft products of highly skilled workmen were converted by our engineering methods into mass-production industries; indeed, by the war's end, some lens-grinding teams were being trained in as little as 6 weeks to do the job which individual craftsmen once had learned in a training period of 4 or 5 years.

But the case for continuing imports rests on more than the contention that it would have a minimal impact on industrial skills. The fact is that a number of our industries respond to continued pressure of competition from abroad by making the very adjustments that are needed to reduce their dependence on rare and expensive industrial skills. United States industries which have been under competitive pressures to reduce costs and prices commonly have had one main recourse—to reduce the labor cost of their product. This has been done in two ways—by reshuffling job requirements to permit the substitution of lower skills for much of the work previously done by higher-skilled workers, and by developing highly specialized machine tools which could be substituted for skilled and semiskilled human labor. Cost-pruning developments of this sort have occurred in many industries as a way of meeting competitive pressures, domestic or foreign. The photographic industry represents a major case, in which a substantial part of the pressure for change has come from abroad. Manufacturers of

organic chemicals, heavy electrical equipment, and microscopes are being goaded to find cost-saving devices to compete with imports. None of these industries will disappear from sight if foreign competition continues. But in each of these cases it seems reasonable to conclude that a reduction of imports would lead to a reduction in cost-cutting pressures and to the continuation of our dependence on a higher labor content in these products.

There is a more general and a more significant point to be made, however, on the impact of foreign trade on United States skills. Increased foreign imports could well stunt the growth of our hatmaking, glassblowing, bicycle-fabricating, watchmaking, cable-winding, lacemaking, and high-grade textile-weaving industries. On the other hand, the United States industries which benefit from foreign trade by their increased exports include trucks, agricultural implements, chemicals, drugs, and machinery. From a defense mobilization viewpoint there is no doubt which of the two industrial groups would be more useful. Not only are the end-products of the second group of industries more relevant to the efforts of a nation at war; it is also the fact that the characteristics of versatility and adaptability which would be needed in the critical phases of any future war are to be found much more commonly in the second group than in the first.

What follows is the familiar conclusion that things are seldom what they seem. Situated as is the United States, a movement toward autarky would surely not strengthen its industrial base for conventional war nor would an increase in foreign trade inevitably weaken that base. The weight of the evidence, in fact, runs the other way. The continental bastion may well derive added potential strength by husbanding its scarce raw materials and exposing its processing industries to the pressures of foreign competition.

Representative BOLLING. Our final witness today is Dr. Percy W. Bidwell. Dr. Bidwell took his doctorate at Yale, was a professor at that institution, and then was an economist for the United States Tariff Commission. He took part in the World Economic Conference at Geneva in 1927, and for many years was stationed for our Government in Brussels, Belgium. Then came service at the University of Buffalo, following which he was director of studies at the Council on Foreign Relations in New York. Among his works is a current investigation he is undertaking at the council concerned with the United States tariff, including a section which studies the problems of the watch industry.

We are very glad to have you, Dr. Bidwell, and you may proceed as you wish.

STATEMENT OF DR. PERCY W. BIDWELL, DIRECTOR OF STUDIES, COUNCIL ON FOREIGN RELATIONS

Dr. BIDWELL. Thank you, Mr. Chairman.

For the record, I would like to state that I am appearing here at the request of the committee in a personal capacity, and not as a spokesman for the Council on Foreign Relations. The council is a nonpartisan, privately financed research organization which takes no position on questions of public policy. I probably do not need to add that I am not appearing as an advocate of either the importers or the domestic manufacturers.

Your committee has asked me to trace the tariff controversy on jeweled-lever watches. This is going to be a comedown, I fear, from the high realm in which we have been indulging. It is going to be a very down-to-earth, factual presentation. I have no speculations about the conduct of the next war. In what follows, I shall use the word "watches" to mean only the jeweled-lever variety. The phrase "watchmakers" will refer only to the four firms that make jeweled-lever watches, namely, Elgin, Hamilton, Bulova, and Waltham. One

more definition. When I refer to imports of watches, I mean watch movements. Very few complete watches in cases are now being imported.

What I have to say will fall into four headings: First, the changes in the tariff on watches over the last 25 years, beginning with the act of 1913, and I will divide those into structural changes and functional changes, and then changes in consumption of watches—and consumption of watches means, of course, as far as we can estimate, the number of watches sold in the American market every year—the changes in imports, and the changes in production. Then I will try to relate the tariff changes in some rough way to the changes in production and consumption, taking account of certain nontariff factors. Finally, I shall have some remarks on the way in which the four American firms have adjusted their operations to meet the changing conditions of competition.

I have certain charts here. As I read this statement, I shall have occasion to refer to them.

There is a chart here called ad valorem rates of duty. The solid line shows the variations from 1929 to 1954, in the ad valorem equivalent of the rates of duty, a rough measure of the effectiveness of the tariff; and the broken line represents the unit value of the watches imported which, of course, is the foreign value, not the value in this country.

Senator FLANDERS. That ad valorem equivalent is found by dividing the total imports by the total duties paid?

Dr. BIDWELL. That is right, Senator Flanders.

Watches were dutiable in the act of 1913 at a flat ad valorem rate of 30 percent. The Fordney-McCumber Act of 1922, shifted the rates to a specific basis, with a resulting rise in the burden of the duty.

Now, this shift in the basis of the assessment always creates headaches for the students of tariff history. If the 1922 act had imposed only one rate on watches, say \$1 per movement, and only one kind of watch had been imported, say of a value of \$2, a perfectly simple computation would show that the rate would be 50 percent. But actually, many different rates were imposed on different types of watch movements, varying according to the number of jewels, the size of the movement, and the number of adjustments. So the result was a frightfully complex tariff paragraph consisting of several hundred different duties. I have not computed how many combinations would be possible, but it certainly would run into the hundreds.

To combine all of them in a single expression, the average ad valorem equivalent is used which, as Senator Flanders has observed, is computed by comparing the total foreign value of the watches imported in any period with the amount of duty collected. Thus, if duties of \$600,000 were collected on watch imports worth a million dollars, the average rate or the average ad valorem equivalent would be 60 percent.

As an indicator of the changing burden of the duty, this ad valorem average rate has several defects. I am not going to pretend this is a perfect measurement. First, it does not give proper weight to the rates which are prohibitive or nearly so. If, in this combination bundle of rates, there are some which cut off all imports, they have no effect upon the average, because it is a weighted average.

The average also is affected by things other than the rate of duty. It is affected by changes in the composition of the imports. If at any time you have a higher grade of watches imported, the average foreign value of the watch will increase, and the average ad valorem equivalent will fall. It is also affected by changes in the general price level; as the general prices of watches rise, the ad valorem equivalent will fall without any change in the rate of duty.

Now, in spite of these defects, it seems to me this device, with rough accuracy, does measure the changes in the burden which specific duties impose on importers and the amount of protection they afford to domestic producers.

Measured by this device, tariff protection of the American watch industry reached its highest point in 1932 under the Hawley-Smoot Act. That is the peak that you see there in the solid line. This act substantially raised the 1922 rates, so that in the years 1931 to 1935, the average of the realized duty was 84 percent. That is, you take all the watches imported from Switzerland, compare the duties collected with their value, and they paid 84 percent on their foreign value.

In the quarter century following the Hawley-Smoot Act, two further changes were made in the watch tariff. In 1936, as I have indicated on the chart, a trade agreement with Switzerland reduced duties on most categories of imported watches. After that, the average amount of duty collected fell rapidly, as you see from the course of that solid line, until in the last 5 years it has ranged from 33 to 38 percent. Thus, in the space of less than 20 years, the burden of the duty was cut in half. This change, however, was brought about in large part by the rise in the foreign values of the imported watch movements.

In 1935, the last year under the 1930 duties, the average value of the movement was \$3.06; and, as you see on the chart, that rose with great rapidity at the beginning of World War II, and in 1954 it was somewhat over \$5.

I should mention one other matter affecting watch imports which was not a legislative or a legal change. I refer to the imposition by the Swiss in 1946-47 of a voluntary quota. The Swiss agreed, upon urging from our State Department, that they would hold the exports of watches for a period of 15 months to the annual average of 1945. I don't think it is known what quid pro quo the State Department offered. I found nothing in the record, and this seems to me a rather unusual act for the Swiss to take, in view of their great dependence upon watch exports.

The watch companies asked the Tariff Commission twice, in February 1951 and again in September 1953, to raise the watch duties. The Commission acted favorably on the first application, and by a 4-to-2 vote recommended an increase. But President Truman rejected the recommendation. In his statement he pointed out that the domestic manufacturers were making good profits. Their production of watches had not declined. They had not cut wages or dismissed employees.

He recognized that their share of the domestic market had fallen, but, as he interpreted the law, their failure to maintain a previously held share of the market did not constitute proof of injury or threatened injury. Moreover, he based his decision on broad considerations of national interest, particularly the need for avoiding a serious loss of confidence abroad in American leadership.

He called attention, moreover, to the damage which raising the import duties on watches might inflict upon the Swiss economy and on United States trade relations with that country. He took note of the argument that defense considerations required the maintenance of a healthy American watch industry, but doubted whether an increase in import duty constituted an effective approach to that objective.

The second application of the manufacturers was successful. The Commission again found that imports were causing serious injury to the domestic industry. It recommended an increase of 50 percent on imported watch movements, but in no case were the new rates to exceed those originally imposed under the Tariff Act of 1930. This qualification affected watches at both ends of the price scale. It meant that watches with more than 17 jewels retained their duty of \$10.75 with no increase. Also, and this turned out to be important, the increase on the less expensive watches with low jewel count was held to less than 50 percent.

The 1930 duty of \$10.75 on movements with more than 17 jewels had practically prohibited imports in that category.

President Eisenhower accepted the Commission's recommendation, and on July 27, 1954, proclaimed the new rates.

His statement implied that the decision might have been influenced by considerations of national security. The press release which accompanied the proclamation said, and I quote:

The President's action will have an important collateral effect in contributing to the maintenance of a satisfactory industrial mobilization base for the domestic production of watch movements and other precision devices necessary for national defense.

So far in this brief outline, I have been concerned only with structural changes in the tariff; that is, changes in rates of duty. Of equal, perhaps even greater, significance to importers and manufacturers were the functional changes. There were modifications, through administrative regulations and otherwise, in the way the tariff works. This I have referred to in another place as "the invisible tariff."

The 25 years 1930-55 display a continuous struggle between manufacturers and importers over the interpretation of the basic legislation. When the congressional committees had finished their work on the Hawley-Smoot tariff in the hot summer of 1930, it seemed they had set up in the complex provisions of paragraph 367 a barrier to imports that would be practically impassable. The barrier had two levels: (1) A duty on the movement itself, varying with its size and jewel content; and (2) an additional duty of a dollar levied on each adjustment. These adjustments are for temperature, changes in position, for isochronism, and so forth. Thus, a typical 17-jewel movement dutiable at \$3.25, with five adjustments, would pay \$8.25 in duty.

Actually, the tariff barrier proved a less formidable obstacle than its builders had intended. The second layer proved no obstacle at all, for the tariff makers had failed to take into account the ingenuity of the Swiss watchmakers. By changes in the technique of manufacturing, they produced watch movements which need no adjustments. Such watches they marked "unadjusted." That marking was sustained by the United States Treasury, and the watches were imported without paying additional duties.

Representative TALLE. Mr. Chairman, may I interrupt at that point?

Representative BOLLING. Certainly, Dr. Talle.

Representative TALLE. I would like to point out that there are two bills under consideration now by the Ways and Means Committee, one introduced by Mr. Reed and one by Mr. Mills, so that loophole is about to be plugged; and, of course, this committee would not want to interfere with the progress of that legislation.

Senator DOUGLAS. It is proper for us to take statements on this, Mr. Chairman.

Representative TALLE. I am not against that, sir.

Dr. BIDWELL. I had meant, Mr. Talle, to add that the matter was now under consideration.

Representative TALLE. Thank you very much.

Dr. BIDWELL. In the clause which provided extra duties on imported movements according to the number of jewels they contained, the Swiss watchmakers found another loophole in the 1930 act. They brought in new types of movements which could be upjeweled after importation. By this process, a 17-jewel watch could be converted at only slight expense—the jewels cost only a few cents apiece—into a 21- or 23-jewel timepiece. An imported 21- or 23-jewel timepiece would have to pay \$10.75 duty, but the duty on a 17-jewel watch would be much less, perhaps 5 or 6 dollars less. So by an expenditure of perhaps a dollar or two in upjeweling, you save several dollars in duty.

Domestic manufacturers protested, and the Treasury ruled against the importers, on the ground that the new devices were substitutes for jewels; but then the importers brought in different types of movements designed to circumvent this ruling. Their action has been condemned as a fraud on the United States revenue, but so far as I know, no criminal proceedings have resulted, for it seems that the action of the importers constitutes tax avoidance rather than tax evasion. In United States customs law, the principle is well established that the importer is justified in preparing his shipments so as to incur the minimum of duty payments.

Senator DOUGLAS. Mr. Chairman, might I ask Dr. Bidwell if he would briefly describe what this new type of movement actually is?

Dr. BIDWELL. Well, I should preface my remarks, Senator Douglas, by saying I am not a horological expert. It is an extraordinarily technical question. I believe that experts from the Tariff Commission would be readily able to answer that, but I am afraid I would only confuse the committee if I attempted to explain it.

Representative TALLE. Mr. Chairman, may I ask Dr. Bidwell, what is the nature of the self-winding device which I believe enters into the controversy?

Dr. BIDWELL. Well, the self-winding device, as I understand it—and here again I am getting into technical affairs—is a device whereby by the movement of a person's hand, as he goes through the day—is it a pendulum, Senator Flanders, which swings back and forth and accomplishes the purposes of winding the watch?

Senator FLANDERS. It uses the old-fashioned pedometer to drive a watch.

Dr. BIDWELL. Yes. I might add that a self-winding watch is made with 23 jewels by one American manufacturer. Other manufacturers import self-winding movements with 17 jewels.

I come now to smuggling.

Senator FLANDERS. Not personally? [Laughter.]

Dr. BIDWELL. Not personally.

Smuggling upset the calculations of the architects of the 1930 tariff, and they failed to take into account the principle from centuries of experience, that when import duties rise above a certain point they defeat their own purpose by making smuggling a richly rewarding enterprise. This is exactly what happened in 1930. Like diamonds, watch movements, especially the smaller movements which are the more valuable, have great value in proportion to their bulk, and hence can readily be concealed in baggage or on the person. They have detected, I think, people coming to New York with as many as 500 or 600 watch movements concealed on their person.

According to a Tariff Commission report:

* * * smuggling rose to such proportions that recorded imports for the first half of the 1930's considerably understate the number of watches and watch movements which actually were brought into the United States in that period. Customs officials seized large numbers of smuggled watches, but even the seized watches finally reached regular trade channels as, under the law, they had to be sold at auction.

Senator FLANDERS. When sold at auction, who gets the proceeds?

Dr. BIDWELL. It goes into the Treasury.

Senator FLANDERS. It goes into the Treasury, so there is a loss to the smuggler.

Dr. BIDWELL. The use of specific rates of duty was a further cause of the ineffectiveness of the watch paragraphs of the 1930 tariff. The framers of the act guessed wrong about the trend of watch prices. Had they been able to foresee World War II and its inflationary effects, they would never have placed their reliance, for protecting the domestic watch industry, on rates of duty which did not vary with the value of the imports.

For a few years, their error was not apparent. When prices were falling in the depression, import duties fixed at so many dollars a movement were an increased handicap to importers and afforded increasing protection to the domestic watch industry. But after 1937, the foreign values of imported watches began an upward movement, as you can see in this chart, which weakened the protective effect of the specific duties. The increase in the foreign values, as I remarked before, resulted partly from the general increase in the price level, and partly from the growing proportion of the expensive watches imported.

I come now to the matter of the relation of imports and watch consumption and production. I wish I could have that next chart shown.

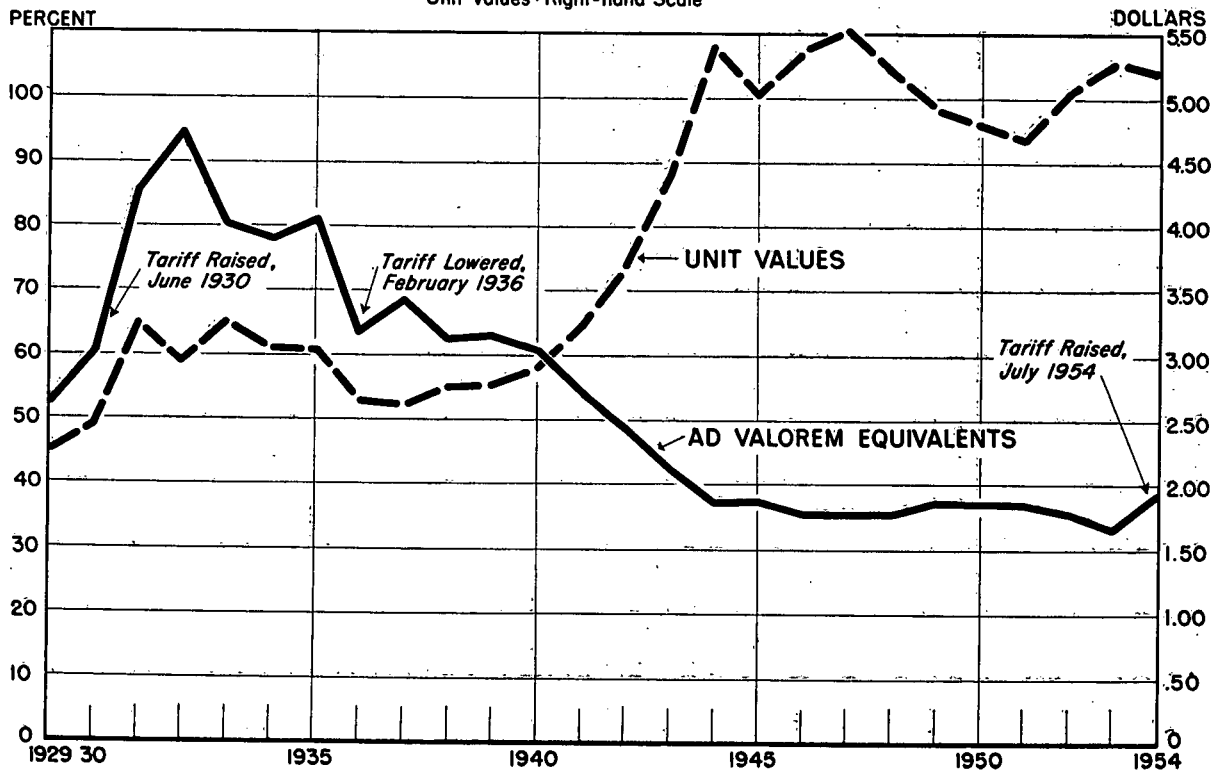
As you can see there, the lower red colored mass represents the fluctuations in the American production of jeweled-lever watches. The blue mass represents the changes in the imports of competitive watches. I have used the formula of the Tariff Commission in reducing total imports to competitive imports, by eliminating the imports of the lower-jeweled count. That is an attempt to eliminate pin-lever watches, which are not separately classified in the import statistics.

The striking development in the watch business in the past 25 years has been the expansion of the American market. When you add the

U.S. IMPORTS OF WATCH MOVEMENTS: AD VALOREM EQUIVALENTS AND UNIT VALUES, 1929-1954

Ad Valorem Equivalents - Left-hand Scale

Unit Values - Right-hand Scale



blue and the red together, you can see how the number of watches bought by people in the United States every year has increased, beginning with the depression years. In the boom year 1929, just before the Hawley-Smoot tariff went into effect, American consumers bought about 6.4 million watches. Of the total 1929 consumption, 73 percent were imported watches, and 27 percent were watches of domestic manufacture.

The depression of the thirties, that great dent in the chart, shows how business conditions affected the sale of watches, and in 1932 and 1933, total watch sales fell to less than 1 million watches a year as compared with 6 million in 1929. And in this depression period, the sales of the imported and the domestic watches were about equal.

The chart shows that business recovery in 1934-37 benefited both importers and domestic producers, and both suffered in 1938 from the business recession of that year.

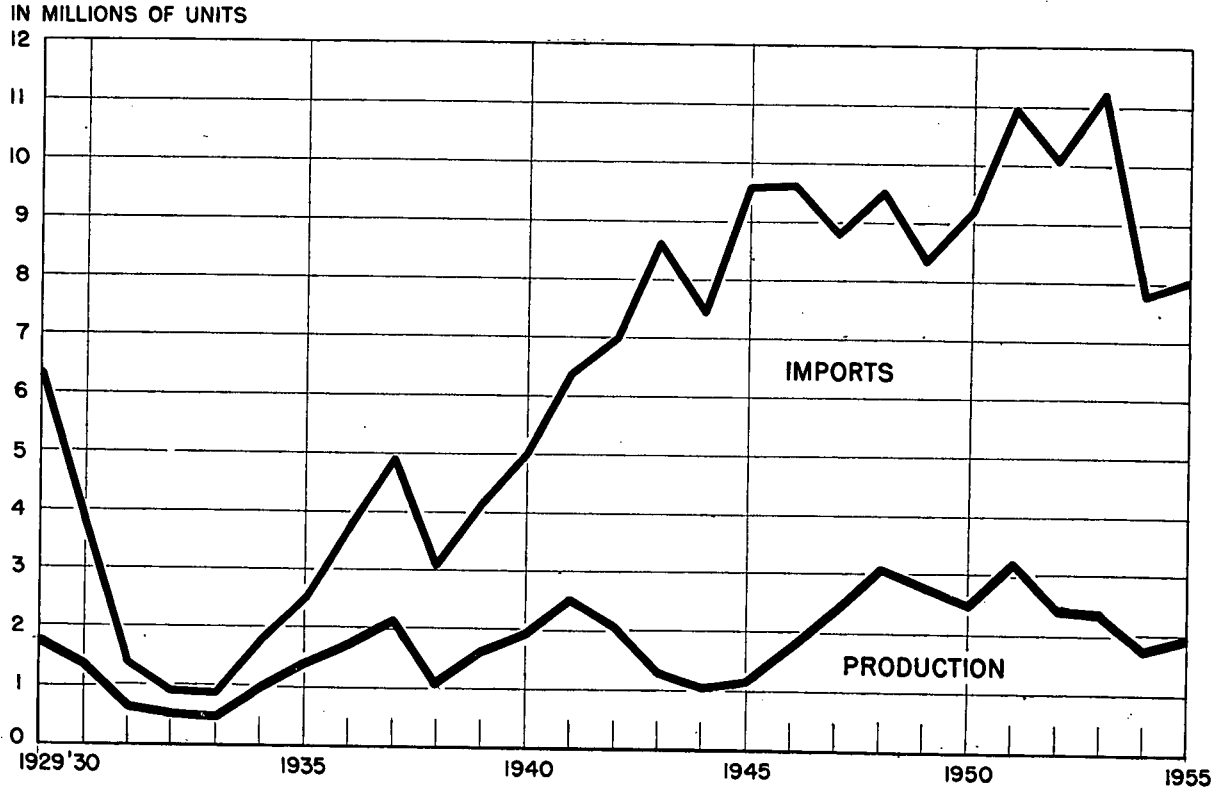
The war was responsible for a great increase in demand for watches, both from the armed services and from the civilian population whose income had shown rapid expansion. By 1945, watch consumption was 9½ million. The imports, as the chart clearly shows, supplied most of the watches that came on the market during World War II where domestic factories were converted to defense work. By the end of the war, their sales had fallen to about a million a year, about the 1935 figure.

The recession which began in late 1953 cut down the 1954 sales of both imported and domestic watches. An added factor which affected imports in the last months of 1954 was an added boost in the duty, to which I referred previously. In some respects this slump in imports represented an inventory readjustment. Earlier in the year, importers had brought in large quantities of movements in anticipation of the tariff increase. Retailers were well stocked, and the need of working off inventories checked imports. Beginning in the first quarter of 1955, imports revived, as this chart shows, under the influence of better business conditions, and this increase has continued steadily through the first quarter of the present year.

What effect did the 1954 tariff have on domestic production? The domestic production of jeweled-lever watches in 1955 showed a gain of 200,000 movements. That is that upward movement right at the end of the section. That was a 12 percent increase, which could be interpreted as what the tariff increase intended to accomplish. But the interesting thing about this gain was that it occurred exclusively in a category of watches on which no increase had been made, namely, on watches with more than 17 jewels. Production of watches with 17 jewels or less, which had received a tariff boost, actually declined from 860,000 in 1954 to 726,000 in 1955. In the same period, the production of watches of higher jewel count rose from 860,000 to 1,200,000.

In the character of the imports a quite different change took place. Imports for 1955 show a shift from the 16-17 jewel watches to those with less expensive movements, including pin-lever watches. We are getting quite a large increase in the cheaper watches since the tariff increases went on. The proportion of 16- and 17-jewel watches in total imports fell from 59 percent in 1954 to 52 percent in 1955, and 49 percent in the first quarter of 1956. In shifting to the cheaper

JEWEL-LEVER WATCHES: U.S. PRODUCTION, COMPETITIVE IMPORTS AND ESTIMATED CONSUMPTION, 1929-1955



watches, the importers have been taking advantage of the fact that the 1954 tariff increases bore less heavily on these categories; namely, they had moved into the area where the duties have not been increased so much.

Senator FLANDERS. Excuse me. I cannot join that to your statement above, in the latter part of the paragraph preceding, where you speak as though the higher jewel count did not carry the same increase that the lower jewel count did, and down here you indicate that imports dropped of the lower jeweled count because they escaped tariff.

Dr. BIDWELL. The explanation is this, Senator Flanders: The increase on the higher jewel count was 50 percent. It worked out that way. It was not an ad valorem increase. It was an increase in the specific rate that amounted to about 50 percent.

The increase on the less expensive watches, with a lower jewel count, ranged from 0 to 50 percent, according to the size of the movements. I said here, in shifting to the cheaper watches, the importers took advantage of the fact that the rate had not been increased as much on those.

Senator FLANDERS. I do not find it now in conflict. I simply read it again. In the second paragraph on page 9 you are referring to domestic production.

Dr. BIDWELL. That is right.

Senator FLANDERS. And in the third paragraph you are referring to imports.

Dr. BIDWELL. You get this very curious situation, that while the manufacturers are shifting to the very expensive watches, which I call their "privileged sanctuary" because that is where the duty is \$10.75, the importers are shifting to the cheaper watches. What happens to the category of watches in between, I don't know. It would be an interesting thing to watch.

Remarks about the effects of tariff change ought always to be accompanied by a word, or several words, of caution. One ought not to concentrate attention exclusively on changes in the quantities of imports and of domestic production. Price changes are also important, but unfortunately a reliable series of price data are hard to come by. When tariff duties rise, importers may elect to absorb the increase rather than sacrifice volume, or they may be able to pass on the increased duty to consumers either by raising prices or by cheapening the quality of their product.

Within a month after the President's proclamation, one large importer announced a flat increase of \$1 per movement in prices to retailers. His "recommended" retail prices to consumers showed an increase of \$3 to \$5 per movement. Another importer made advances of \$0.50 to \$1 on prices to retailers and suggested that prices to consumers should be raised by \$3. In many cases, however, importer-assemblers continued to sell at the old prices until inventories were exhausted, and after that they raised them gradually. Often the increased duty was passed on to the consumer by cutting the quality of the case, bracelet or strap rather than by raising the price of the watch. (Quoted from the author's forthcoming book, *What the Tariff Means to American Industries*, to be published by Harper & Bros., September 1956.)

There is usually a lag before the new duties can work out their effect and, consequently, we should not pay too much attention to what has happened since July of 1954. Moreover, tariff change, as I have observed, never operates in a vacuum, but always in conjunc-

tion with other changes. In the 25-year period since the act of 1930, it seems that the major factors affecting imports were not tariff changes, but fluctuations in the level of American business activity, with resulting changes in the income of consumers and in their propensity to buy watches.

May I have those two remaining charts?

The next chart shows in general that as personal consumption expenditures dropped in the depression, the imports of watches followed a roughly similar course; and that the personal consumption expenditures have risen steadily since about 1940, with an increase in the imports of watches. As you would expect, a figure for personal consumption expenditures, which combines purchases of millions of dollars and includes washing machines, radios, and household goods of all kinds, food, clothing, and so forth, is a smoother curve; whereas the watches, being a single item, have shown many individual ups and downs.

Now here is a chart, based on quantities, and here we find a closer agreement between industrial production and imports of watches.

If we take industrial production as the general indicator, as it often is, of fluctuations of business activity in the United States, you can see there is quite a close agreement there with the imports of watches.

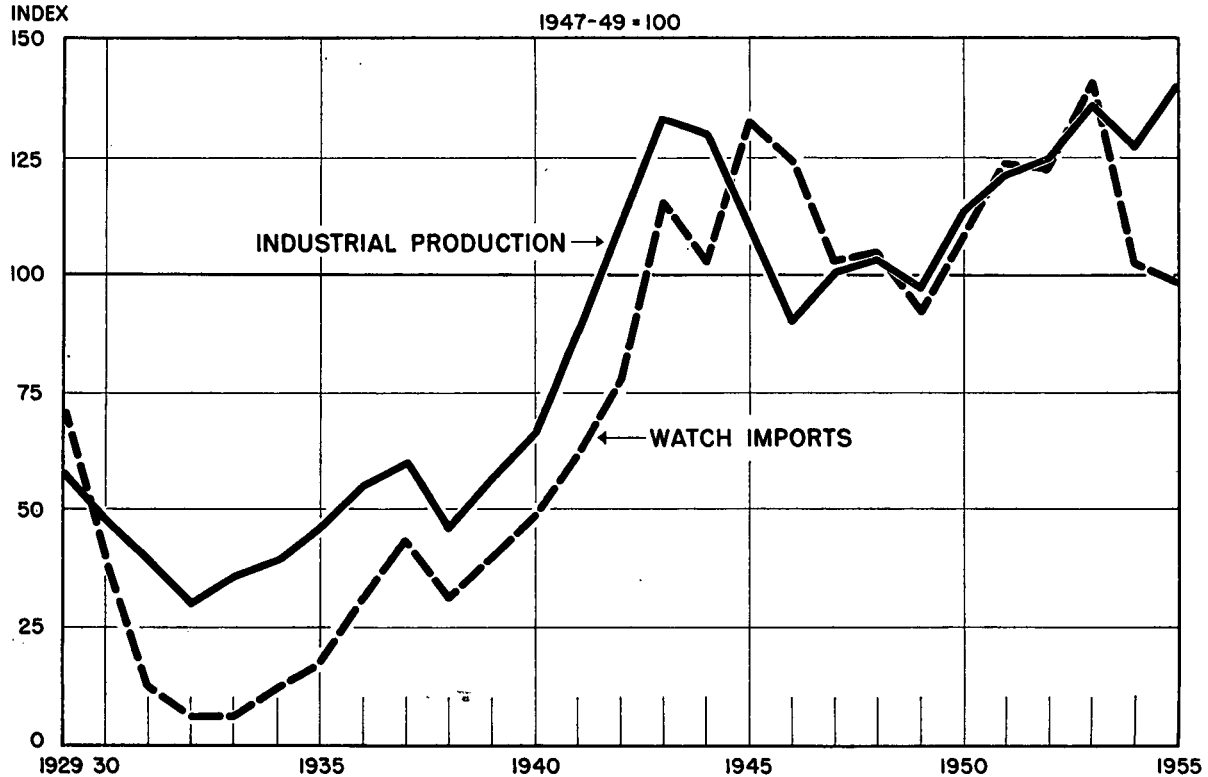
I want to speak in conclusion about matters of adjustment, not watch adjustment but economic adjustment. The American manufacturers, after 1940, shared to only a small extent in the expansion of the market for watches. In a period when American industrial production increased two and one-half times, the output of American-made watches gained only one-eighth over the prewar figure. Nevertheless, the three leading watchmakers, Elgin, Hamilton, and Bulova, have prospered. The fourth firm, Waltham, has had a long history of financial difficulties which had little to do with import competition.

The explanation of the fact that, although the watch manufacturers have not shared in the general upswing of production, they still are prosperous, is found in a remarkable ability in adjusting their operations to the changing conditions of import competition.

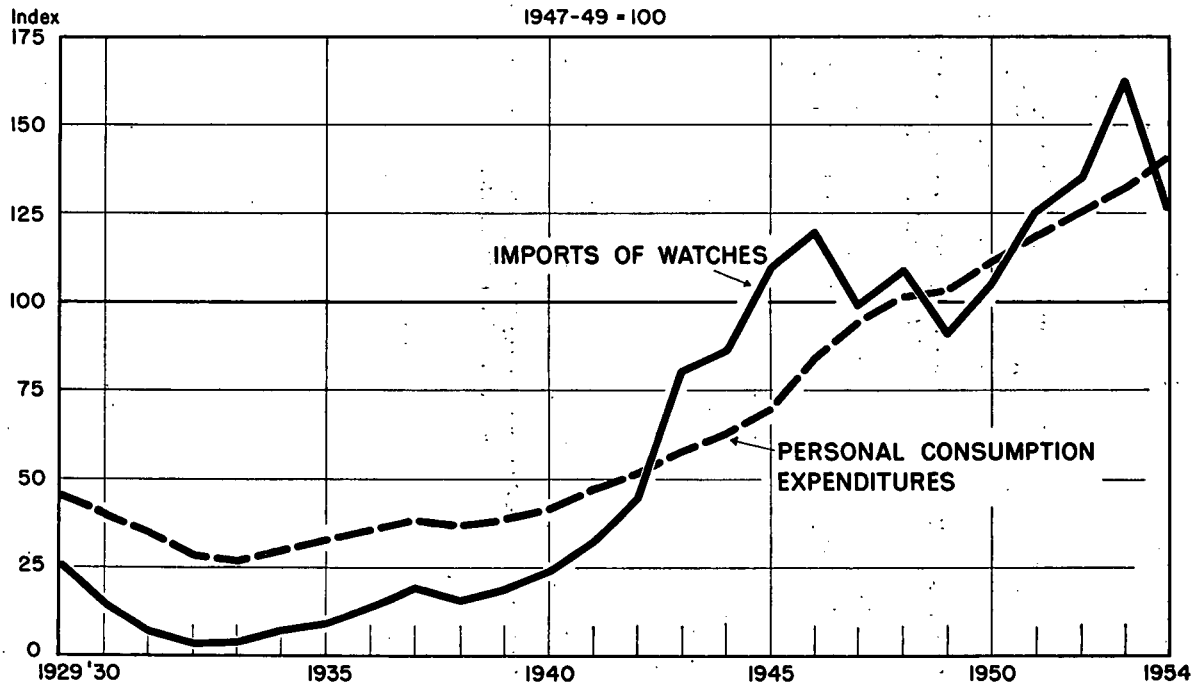
This adjustment has taken several forms. First, the manufacturers have changed the character of their product. In prewar years, watches with more than 17 jewels accounted for only 13 percent of the American output. In 1955, the ratio was 62 percent. The explanation is found in the import duty on watches with more than 17 jewels, which has remained since 1930 at the exceptionally high figure of \$10.75 each. In response to the growing pressure from the Swiss watches of 17 jewels and less, the American producers have retreated into this privileged sanctuary.

The American manufacturers have made significant improvements in processes of production. By adopting assemblyline techniques they have reduced man-hour requirements. They have also diversified their products by taking on defense contracts and by investment in the new electronics industry. The results are seen in sales records and in employment. The Tariff Commission found that in 1953, watches with American-made movements accounted for only 45 percent of the combined sales of the four domestic manufacturers. That is less

U.S. INDUSTRIAL PRODUCTION (ALL MANUFACTURES) COMPARED WITH IMPORTS OF COMPETITIVE JEWELLED-LEVER WATCHES, 1929-1955



PERSONAL CONSUMPTION EXPENDITURES COMPARED WITH FOREIGN VALUES OF ALL IMPORTED WATCH MOVEMENTS, 1929-1954



than half of their combined sales. In the same year, only 43 percent of their 9,750 employees were engaged in watch manufacture.

Importing constitutes another method of adjustment. In postwar years, all the American manufacturers of jeweled-lever watches have gone into the importing business. They bring in Swiss movements, put them into American-made cases, and market them either under their own or a different brand name. In 1953, watches with imported movements made up 23 percent of total sales for the American manufacturers.

This completes my statement, Mr. Chairman.

Representative BOLLING. Thank you very much.

(The tables submitted by Dr. Bidwell are as follows:)

TABLE 1.—United States imports of watch movements: Ad valorem equivalents of rates of duty and unit values, 1929–54

Year	Ad valorem equivalent (per cent)	Unit value	Year	Ad valorem equivalent (per cent)	Unit value	Year	Ad valorem equivalent (per cent)	Unit value	Year	Ad valorem equivalent (per cent)	Unit value
1929.....	52.4	\$2.25	1936....	63.4	\$2.64	1943....	42.3	\$4.38	1949....	37.0	\$4.90
1930.....	60.1	2.45	1937....	68.3	2.62	1944....	37.0	5.39	1950....	37.0	4.80
1931.....	85.5	3.23	1938....	62.4	2.75	1945....	37.3	5.04	1951....	36.6	4.68
1932.....	94.5	2.94	1939....	62.9	2.76	1946....	35.4	5.37	1952....	35.4	5.05
1933.....	80.3	3.26	1940....	60.8	2.89	1947....	35.4	5.53	1953....	33.2	5.29
1934.....	78.1	3.08	1941....	54.6	3.20	1948....	35.4	5.21	1954....	38.4	5.19
1935.....	80.7	3.06	1942....	49.0	3.63						

Source: Ad valorem equivalents—U. S. Tariff Commission. Unit values—calculated from quantities and foreign values of imports, as reported by the U. S. Bureau of the Census.

TABLE 2.—Jeweled-lever watches: United States production, competitive imports and estimated consumption, 1929–55

[In thousands of units]

Year	Production	Competitive imports	Estimated consumption ¹	Year	Production	Competitive imports	Estimated consumption ¹
1929.....	1,737	4,688	6,376	1943.....	1,313	7,420	8,604
1930.....	1,330	2,530	3,812	1944.....	1,014	6,588	7,461
1931.....	612	774	1,379	1945.....	1,103	8,487	9,566
1932.....	488	401	887	1946.....	1,720	7,969	9,605
1933.....	463	409	870	1947.....	2,364	6,617	8,813
1934.....	950	799	1,748	1948.....	3,018	6,696	9,515
1935.....	1,393	1,080	2,472	1949.....	2,793	5,904	8,352
1936.....	1,702	2,027	3,706	1950.....	2,480	6,915	9,232
1937.....	2,111	2,809	4,882	1951.....	3,162	7,953	10,977
1938.....	1,042	2,028	3,054	1952.....	2,433	7,877	10,069
1939.....	1,624	2,565	4,164	1953.....	2,365	9,030	11,173
1940.....	1,912	3,103	4,986	1954.....	1,716	6,573	7,823
1941.....	2,510	3,944	6,409	1955 ²	1,926	6,300	8,000
1942.....	2,070	4,980	6,978				

¹ Small quantities, representing exports of domestic watches and reexports of watches containing imported movements, have been deducted in order to arrive at estimated consumption.

² Preliminary.

Source: Computed from official statistics of the U. S. Tariff Commission and U. S. Bureau of the Census.

TABLE 3.—United States industrial production (all manufactures) and imports of watches which compete with domestic jeweled-lever watches, 1929–55

[Index numbers: 1947–49=100]

Year	Industrial production	Watch imports	Year	Industrial production	Watch
1929.....	58	73.2	1943.....	133	115.8
1930.....	48	39.5	1944.....	130	102.8
1931.....	39	12.1	1945.....	110	132.5
1932.....	30	6.3	1946.....	90	124.4
1933.....	36	6.4	1947.....	100	103.3
1934.....	39	12.5	1948.....	103	104.5
1935.....	46	16.9	1949.....	97	92.2
1936.....	55	31.6	1950.....	113	107.9
1937.....	60	43.8	1951.....	121	124.1
1938.....	46	31.7	1952.....	125	123.0
1939.....	57	40.0	1953.....	136	141.0
1940.....	66	48.4	1954.....	127	102.6
1941.....	88	61.6	1955.....	140	198.3
1942.....	110	77.7			

¹ Preliminary.

Source: Industrial production compiled by the Board of Governors, Federal Reserve System. Imports of competitive watches, calculated from official statistics of the U. S. Tariff Commission and U. S. Bureau of the Census.

TABLE 4.—Personal consumption expenditures compared with foreign values of all imported watch movements, 1929–54

[Index numbers: 1947–49=100]

Year	Imports of watches	Personal consumption expenditures	Year	Imports of watches	Personal consumption expenditures
1929.....	25.7	45.3	1942.....	44.4	51.4
1930.....	14.9	40.7	1943.....	80.9	57.7
1931.....	6.3	35.2	1944.....	86.1	62.9
1932.....	2.9	28.3	1945.....	109.6	69.8
1933.....	3.4	26.6	1946.....	119.9	84.0
1934.....	6.6	29.8	1947.....	99.2	94.6
1935.....	8.5	32.3	1948.....	109.0	101.8
1936.....	13.5	35.9	1948.....	91.7	103.6
1937.....	18.9	38.6	1950.....	105.4	111.2
1938.....	15.2	37.0	1951.....	125.3	119.4
1939.....	18.6	38.8	1952.....	136.0	125.2
1940.....	23.6	41.2	1953.....	163.4	132.2
1941.....	31.9	47.0	1954.....	126.7	135.6

Source: Personal consumption expenditures, U. S. Department of Commerce. Imports, calculated from official statistics of the U. S. Tariff Commission and U. S. Bureau of the Census.

Representative BOLLING. Before proceeding to questions from the panel, I have a couple of matters that I would like to dispose of. In the first place, one of our panel members, Mr. Hensel, had to catch a plane, and had to leave before the questioning; and he has agreed to respond to any questions that the members may wish to put to him by letter.

In the second place, I would like the permission of the committee to include in the record of today's proceedings, at the appropriate place, a statement entitled, "A Bridge Between Conflicting Criteria—The Developmental Tariff," submitted by Prof. Josef Solterer, chairman of the department of economics of Georgetown University. Without objection, that will be done.

Senator Douglas, do you have questions of the panel members?

Senator DOUGLAS. First, I want to congratulate all of the participants on the excellence of their statements, and the public spirit which quite obviously lies behind them.

The first question I should like to ask is addressed to the political consequences of tariffs on watches, and I suppose that this primarily refers to Switzerland. I have spent some time in Switzerland. I am very fond of the country and of its people. I think it is also true, however, that Switzerland is probably the most determinedly neutral country in the world. It is anti-Communist, but it is determined to keep out of any future world conflict. It kept out of the two past World Wars, and is determined to keep out of any other war.

Representative TALLE. Senator Douglas, they have not been in a war for 600 years.

Senator DOUGLAS. Well, it might be they were in the Napoleonic wars, but there is some question about that.

In fact, anyone who attempts to urge in Switzerland that they should join a system of collective security is exposed not only to popular attack but to great pressure. When I was in Switzerland last, a professor, I think at the University of Geneva, prepared a speech which he was to give, advocating Swiss participation in collective security, and he was threatened with the loss of his position and was forced to give up his address.

I think that under no conceivable circumstances would Switzerland be a military ally of the United States; and, therefore, the immediate political consequences of a tariff on watches which might apply in the case of other countries in the non-Communist world, would not seem to apply to them. I would like to ask the members of the panel if, in their judgment, this is correct, and then to go on further to inquire about the economic effects of a tariff on Swiss watches on our part.

Dr. VERNON. May I say a word on that, Senator?

Senator DOUGLAS. Yes.

Dr. VERNON. May I suggest that in gaging the political consequences of the restrictions on watch imports, one needs to look not so much to Switzerland as to the other nations that are directly and intimately concerned with this problem.

I suspect, from a political point of view, that there was a substantial adverse impact upon United States relations with other countries, and that impact had to do with relations with other exporters to the United States of other products. The watch case, to a Britisher or a Frenchman or an Italian, is perhaps as important as it is to Switzerland, although they don't, in diplomatic—

Senator DOUGLAS. Why is that, Doctor?

Dr. VERNON. Simply because the watch case for them represents an epitomization of United States policy, which can affect their own exports, an implication of which they are extremely conscious. For the Britisher, the question is, given the watch import policy, what does it mean for the export of British machine tools, British bicycles, or British anything else.

Senator DOUGLAS. To Switzerland?

Dr. VERNON. No; the export to the United States.

Senator DOUGLAS. Why should they cry before they are hurt?

Dr. VERNON. Well, that is probably the best time at which to cry, I would suspect. It is the time at which perhaps crying is most relevant to avoid the hurt. I can vividly recall at the time during which I was in the Department of State in connection with the first escape-clause proceeding on watches, the intense interest of all the

other nations over the watch case, as the first case in which the United States proposed to shape its defense essentiality import policy.

Senator DOUGLAS. But if a policy could be pinpointed and applied to watches alone, the question that I raise is, if it could be (and it is quite likely it cannot be, but if it could be), isn't the political case weakest in the case of watches in Switzerland?

Dr. VERNON. If the case could be so contained, then what you suggest follows—I would, of course, take issue with the reality of the assumption. I would suggest that from everybody's point of view abroad, it is reasonably evident that this may well be the prototype for a succession of cases.

Senator DOUGLAS. May I ask that from the economic point of view, what effect would it have on our exports?

Dr. VERNON. Of course, the immediate interrelationship of exports to imports is a little difficult to trace at times, as you well know, Senator. On the general assumption that in the end, Swiss exports will roughly tend to equal imports or, on the alternative assumption, that the Swiss will retaliate—perhaps a more realistic assumption—the segment of United States exports most likely to be affected in a way which would hurt us are a miscellaneous supply of manufactured goods, plus agricultural exports. The Swiss are heavy importers of our agricultural products, and it has been their avowed intention, if they have not already exercised it, of cutting back on United States agricultural exports to them.

Senator DOUGLAS. So the arguments are primarily economic against tariffs.

Dr. David?

Dr. DAVID. May I venture a general account on your query, Senator, that the form of distinction which you make between political and economic, in the sense that you presented it, it seems to me, breaks down.

Secondly, that to the extent that one can gain any impression from Europeans, the specific case in the watch industry seems to raise a question about the general posture and intention of the United States with respect to trade policy generally. This is perhaps why they cry before they are actually injured.

And in a general economic sense, it would appear that to the extent that we are dependent upon neutral states and allies for a certain range of commodities, skills, and the like, it would seem that any American policy which has some measure of injury for the structure of their economy, in turn has a cost item built in, so far as we are concerned; so that, to take an extreme example, the destruction of the Swiss watch industry would, from a pure import point of view in terms of American needs, have disastrous consequences for us.

Senator DOUGLAS. May I ask one more question.

Representative BOLLING. Certainly.

Senator DOUGLAS. There is a question I would like to ask of Dr. David: I inferred that what you said, the burden of your testimony was that it was more important to build up the actual level of general ability and skills which were available to industry than to pinpoint the stockpiling of skills in a specific set of operations. And I may say that from what study I have been able to give the subject, I agree with you.

I wonder, although this may be a little bit off the principle, I wonder if you would express your opinion as to what the largest available source of nonutilized or nondeveloped ability is in the United States and the latent resources of ability which are soaked into our educational and financial system we are not tapping.

Senator FLANDERS. May I make an observation at that point. When you ask what available resources for the development of skills there are, perhaps the most remarkable example is that of Senator Langer's Indians up in North Dakota, who are making jewels, and making very good jewels, very successfully. Now, what does that teach us about the latent abilities of the American people?

Senator DOUGLAS. I am very glad to have this testimony from the Senator from Vermont, which I think—

Senator FLANDERS. Who is himself one one hundred twenty-eighth Indian. [Laughter.]

Senator DOUGLAS. I would say you are all ready to run for President.

Dr. DAVID. There are a series of general answers to this query, and I would hate to quantify any part of my replies, Senator Douglas. I would say those groups in the population, by and large, which are deprived of adequate schooling, measured by adequate standards of elementary and secondary schooling, it would seem to me, constitute the most important segment of the total population where potential ability is wasted.

Senator DOUGLAS. What groups are those?

Dr. DAVID. Those can be identified in certain ways. By and large, this is true for certain rural areas in the United States, but not equally so. It is true regionally for the Southeast as a whole, and the Southwest to a somewhat lesser degree.

It is true in terms of racial groups for the Negro population as a whole. This is a population roughly the size of the population of Canada, some 16 millions, with very inadequate opportunity for the development of their native abilities.

It is true in lesser degree for other ethnic and racial groups, that is, Spanish-speaking Americans, it is true for Puerto Ricans, for example, and in a certain sense it is true not only for the educational base as such, but with respect to the utilization of acquired skills for the more than one-half female portion of the population.

But that is a function of utilization and not an aspect of their prior educational training, because, by and large, they do much better in this respect than the men do in our society.

Senator DOUGLAS. That is all, thank you.

Representative BOLLING. Senator Flanders?

Senator FLANDERS. Questions have been raised here which are very difficult, and also very important in this connection. For instance, the policy question as to whether to use tariffs or other things to reward friends and punish neutrals, we will say, rather than enemies, is an important question. I do not know that this committee wants to go into that, but nevertheless we have to recognize it as one of the questions involved here.

I would take it that the Swiss have no intention or desire of being anything else than neutrals, so that we cannot expect to affect their policy in any way by rewards and penalties. Personally, I am doubt-

ful whether we can affect any people's policy effectively and fundamentally, and clear down to the marrow of their bones, by these rewards and these penalties. I do not think we can.

There is another question with regard to the Swiss watchmaking which touches on American ideas of what is good for this country or good for an industry, and that is the cartel situation in the watch industry in Switzerland. I do not think that has been mentioned, has it, by any of those who have appeared here? I would be glad of any suggestion from the panel as to whether they attach any significance in our commercial policy with Switzerland to the existence of the watch cartel. I would be glad to hear from them on that subject.

Dr. BIDWELL. Mr. Chairman—"cartel" is an opprobrious word.

Senator FLANDERS. It is here, but not there.

Dr. BIDWELL. Yes. The Swiss watch manufacturers are very well organized. They have a Swiss Watch Chamber of Commerce. Whether or not they actually control the prices at which watches are sold in the United States, I don't know. But the Department of Justice has proceeded against the Swiss watch organization and American watch firms on the ground of violation of the Sherman Antitrust Act and the Wilson Act.

A suit which has been brought—I don't know what its present status is—which concerns prohibition of the Swiss watch cartel on the export of machinery, and the contention, as I remember it, of the Government is that the American firms who have imported Swiss machinery have agreed not to use it under certain conditions for watch manufacturing.

Those are matters which the committee can very well verify, and I am speaking now only from my memory, but the point I wanted to make was that the existence of such an organization is well recognized, and that the American Government has considered it injurious.

There is a curious inconsistency here, I believe, in our Government's position. The Department of Justice has charged the American manufacturers, as I remember, with conspiring with the Swiss to maintain prices of watches, which would not seem to be an injury to the American manufacturers.

Senator FLANDERS. It is a little difficult to understand.

Dr. VERNON. May I say a word on this, Mr. Chairman?

I think I should qualify myself first in making this statement. My first job with the Department of State was as head of the Industry Branch of the International Resources Division, which was that part of the Department of State which was concerned with restrictive business practices and cartels. And I spent several exciting years lancing against raw materials cartels, and the watch cartel and the diamond cartel, and a great many others.

Personally, I would much prefer if the Swiss industry were organized on a competitive rather than a cartelized basis. I have a suspicion it would be better for the Swiss and I am reasonably sure it would be much better for the United States.

But in gaging the relationship of cartels to this problem, one has to say this cartel has behaved in a peculiar fashion for a cartel. It, rather than the United States industry, which one must assume to be uncartelized, has introduced most if not all of the major innovations in watch manufacture since 1933. Rustproof movements, sec-

ond-sweep hands, and so forth. It, rather than the American industry, has introduced the business of marketing a watch, through the American importers and assemblers, not as a piece of jewelry with a markup normally in excess of a hundred percent, but rather, as an everyday commodity with a much smaller markup, going through department stores and the corner drugstore. And the enormous increase in watch consumption which Mr. Bidwell described on his very illuminating charts, in my view, were in part due to the innovations by the Swiss in making a better watch and marketing it as an everyday commodity rather than as a piece of jewelry.

Now, there is one argument which could have been made with respect to cartels in general which I am not sure has been adduced here: The contention that the Swiss dump their watches here at prices lower than the cost of production, and hence stifle United States industry. In this particular case, I think such a possibility needs to be ruled out because of the enormous importance of the United States market to the Swiss exporter. If the United States market constituted some marginal element of his exports, 5, 10, 15 percent, one could envisage this as a possibility, with the Swiss taking their profits in other markets. But the United States market is so large a proportion of total Swiss business that for the Swiss to dump in the United States market is tantamount to saying they have discovered a way of doing business without making money, which I doubt they have discovered.

I suggest that the cartel issue has only the barest relevance, if any relevance at all, to the problem before us; and I suggest also that to insist that because the Swiss are a cartel we don't want their watches, may have some analogy to the contention that because a Soviet scientist has invented some new wrinkle in thermonuclear energy, we don't want to use it. I suggest that if the Swiss are giving us serviceable watches at low prices, whether or not they are organized as a cartel, we had better determine whether we want the watches in terms of economic and political analysis unrelated to the form of their organization.

Dr. BIDWELL. Mr. Chairman, may I correct my observations. I have here an excerpt from a book I am writing, in which I have stated more correctly what I wanted to say about the Swiss trade association.

The United States Department of Justice has charged the Swiss trade association and American firms engaged in importing watch movements into the United States, with restraint of trade in violation of the Sherman Act and certain provisions of the Wilson Tariff Act.

Specifically, the Government charged, inter alia, that the importers had agreed not to set up facilities to manufacture watches and watch parts in the United States, and that they have participated in an agreement to limit the number of certain brand-name movements which would be shipped into this country.

Furthermore, certain importers were charged with having conspired to fix the prices of the Swiss movements; this combination and conspiracy, the Government charged, had retarded the growth of watch manufacturing in the United States, and had also maintained the prices of the Swiss watches in the United States at arbitrary and noncompetitive levels.

This suit involves firms engaged both in importing and in manufacturing: As I stated previously, all of the American manufacturers are now engaged in importing.

Representative BOLLING. Anything further, Senator Flanders?

Senator FLANDERS. Unless someone else has further thoughts on the cartel aspects of the watch trade.

Representative BOLLING. If not, Dr. Talle?

Representative TALLE. Mr. Chairman, just two brief comments. One, in the light of the point I raised when Dr. Bidwell was reading his statement, I did want to have the record show that the Ways and Means Committee is in process of dealing with the specific defect involving tariff evasion. Knowing how reluctant committees are to yield any part of their jurisdiction, I always refrain from encroaching upon such jurisdiction; but I gather from the excellent testimony this morning that the scope of the statements is far broader, and that the specific objective of the Ways and Means Committee is not regarded as a paramount issue in this hearing; is that correct, Dr. Bidwell?

Dr. BIDWELL. Yes. I have a feeling that the Ways and Means Committee will eventually find some way to deal with this subject.

Representative TALLE. There seems to be good unanimity about it, because Congressman Mills of Arkansas, a Democrat, and Congressman Daniel A. Reed, of New York, a Republican, have introduced, as I understand it, identical bills, so the committee must, therefore, be in a mood to deal with it effectively.

Dr. BIDWELL. If I may make one more remark, I would say that the Swiss manufacturers have probably not exhausted their supply of ingenuity, and the Tariff Commission in one of its reports on this subject has taken a rather dim view of the possibility of controlling it by legislation.

Representative TALLE. The human mind moves in mysterious ways its wonders to perform.

Senator FLANDERS. May I suggest that that same ingenuity may have something to do with their competition with American watch-makers?

Representative TALLE. Mr. Chairman, my second point was to say I know the Office of Defense Mobilization is giving constant and intensive study to all things having to do with essential mobilization. Aside from that, I have nothing to say except to thank you gentlemen for your testimony.

Representative BOLLING. Thank you, Dr. Talle.

Congressman Curtis?

Representative CURTIS. I want to first thank the subcommittee for letting me sit in on the hearings. I have just two questions.

One is to Dr. David, and I want to take this opportunity of expressing my deep appreciation for the work that the National Manpower Council is doing. I think the work you are engaged upon is the most important that I know being done right now, as far as the future of this country is concerned. I have read every publication that you have issued, and I am going to continue to read them.

You made a remark, and I may have gotten it in error, that you cannot stockpile human skills like you can materials; and, of course, I agree with that. But you did not mean to imply, or did you mean to imply, that we cannot stockpile human skills? You get the distinc-

tion. I agree you cannot do it like you do materials, but it seems to me the very issue that your manpower council is grappling with is how we can stockpile skills or at least have them available in our society.

Dr. DAVIN. Not stockpile skills in that sense. I think you are quite correct, Congressman, in saying that one has to think about how one can make the skills available to the society, either by establishing the base so that highly specialized skills can be learned with relative ease, or by learning the ways through which one can utilize them through maximum effectiveness.

I might illustrate my point by citing a case in a field where there is an alleged shortage. For example, in the engineering field. There are, unfortunately, there stockpiled skills which cannot be utilized because the nature of engineering has changed so radically within the last 20 or 30 years. In the telephone industry, for example, someone called a switching engineer used to be highly critical. He planned circuits and did the panel work, and so forth. Unhappily, they developed the transistors, and they now bake circuits. The sad part is that the switching engineers can not switch. They cannot become other engineers. They are stockpiled in a literal sense. They are frozen.

And this, perhaps, bears on this general problem, because it is interesting that this type of engineer was the function of a training system which responded very narrowly to the specific demands of the industrial consumers of engineers, because industry wanted people with highly specific training and of a practical nature. That was roughly about 25 to 30 years ago.

The whole character of engineering education in our leading institutions has changed radically since then, because the problem is how to get an engineer with enough science, physics, and mathematics, built into him so that he moves with the changing nature of science and technology.

If you understand by "stockpiling," something of that sort, that is, what is it that you give relatively early in the lives of people by way of basic foundation so that you do prepare them to be adaptable to change—because change is a part of the work life experience—so that you produce what Dr. Vernon spoke about, that is, high flexibility and versatility.

This is really a notion of how you build in dynamics into the development of people's skills rather than how you freeze a body of attained skills at a point in time. There is, I think, a formal and important distinction between the two.

I might say, out of ignorance, I don't know enough about the structure of occupations within the watch industry, but I am struck by the relatively high proportion claimed for skilled workers in production occupations in the field, because it runs above the general average in manufacturing as a whole which, according to the Census, and one can doubt that, is about 35 percent of total employed in the field.

If you estimate some 4,000 highly skilled people out of a total work force ranging between 10,000 and 12,000 at maximum, it seems somewhat out of line. Moreover, I don't see how one can simply stipulate that the nature of the work functions the skilled workers perform will remain unchanged for a given number of years into the future; and it is the notion of stockpiling in that sense that becomes inoperative.

Representative CURTIS. I was certain that you meant that, and did agree with it. I wanted to point it up, because, incidently, I think it is one of your publications, *European Impressions of the American Worker*, by Mr. Smuts—

Dr. DAVID. That was done as a related project at Columbia.

Representative CURTIS. A related project was the thing that impressed me in pointing out the flexibility of the American workman who did not become, as many people thought he might, an automaton at a machine, but he had to be shifted from machine to machine and spend constant time in being retrained, and he is accustomed to it and therefore developed an adaptability. Apparently we have developed that.

Dr. DAVID. Yes.

Representative CURTIS. So that in that sense, I think we agree the term "stockpiling" is not good, because it does refer or have the connotation of materials; but they have the skills available or skill available. That is important.

Dr. BIDWELL. Mr. Chairman, may I comment on this question?

Representative BOLLING. Certainly.

Dr. BIDWELL. I think there has been a failure here to distinguish between skilled workers and engineers. In the watch industry, I understand there are about 4,000 people involved in making watches, that is, the 4 firms employ about 9,700 people—I do not know where your figure, Dr. David, of 20,000 came from.

Dr. DAVID. No, no. The total employment in the industry is supposed to run between 10,000 and 12,000, and approximately 50 per cent of the 4,000 you mentioned were supposed to be classified as skilled.

Dr. BIDWELL. The emphasis in the discussions I have heard is upon tool and die makers. They are not engineers, they are skilled workers. And they have been cited as critical people. The training of these people—Senator Flanders knows much more about this than I do—is supposed to take 10 to 12 years, or 8 to 10, before they reach their maximum skill. In a watch factory of about a thousand people, there will be about 8 or 10 of these men who are really skilled in the highest degree. These people do not make watches. They make parts of machines that make parts of watches. They have to work to tolerances of one ten-thousandth of an inch.

Senator Flanders. Even finer than that.

Dr. BIDWELL. Finer than that. They have to work on very small parts, so small that sometimes they are hardly visible to the naked eye. In a watch movement so small that you can put it on a dime, there may be 200 parts.

The question of stockpiling, it seems to me, concerns not only the engineers; it concerns these highly skilled workers, and in the discussions that you will undoubtedly hear later on, a great deal will be said about their essentiality in the manufacture of watches, and their importance as a reservoir of skills for defense manufacture.

Twenty years ago I understand that practically only the watch manufacturers had men of this rare skill, and there are still companies who want very small components done with extreme accuracy who will turn to the watch manufacturer to get them. But I am informed that

in the last 20 years there have been very great developments in precision manufacture, what might be called microengineering.

Dr. DAVID. Yes.

Dr. BIDWELL. And that, I should say, has weakened somewhat the monopoly position of the watch companies.

Dr. DAVID. May I, Mr. Chairman—

Representative BOLLING. Certainly.

Dr. DAVID. You can in any work force designate peculiarly strategic people. I mean the tool and die people, model and patternmakers, the diesinkers—these occupy a very unusual role. They are, of course, found distributed throughout the industrial world, and not limited to this particular industry, even though they work on very, very small items.

One of the problems here, obviously, is that there are so many other factors which determine entrance into a field, continuation of work in the field, the acquisition of perhaps a very unusual combination of skills, that to attack this kind of problem by the kind of device with which we are concerned today seems very odd, because on theory it could be applied across the board to every industrial field and to every subgroup of skilled workers in the economy.

Then one could argue that one should maintain, engaged in a certain range of functions, these kinds of people doing what they are doing so that under subsequent and different situations one could transfer them to a totally different range of functions or different range of end products.

There is a whole complex of things which affect the development of tool- and diemakers, and so on. Not only is there, incidentally, microengineering but the people in the field tell me there are new shortcuts in the acquisition of tool- and diemaking skills, and they tell me they can cut the years now by 25 or 50 percent.

Representative TALLE. Mr. Chairman.

Did I understand, Dr. David, that you spoke about transfer of training, training can be transferred?

Dr. DAVID. Well, certain bodies of training can be used for a range of functions; yes.

Representative TALLE. That used to be a red-hot issue in education; was it not?

Dr. DAVID. Yes. I will play it safe, if I may, Mr. Congressman, by saying if you taught enough young men calculus they could use it in a lot of different places, they would not all have to become mathematics instructors.

Representative TALLE. Thank you.

Senator FLANDERS. May I inquire what the nature of the succeeding groups or kinds of testimony is to be?

Representative BOLLING. Tomorrow, in this same room at 9:30, we will hear from representatives of the watch importers; and on Wednesday, in a room not yet decided, we will hear from representatives of the domestics. On Thursday, we will hear from people skilled in microprecision manufacture, and also, in the afternoon, from the head of the Office of Defense Mobilization, Dr. Flemming.

Senator FLANDERS. The question has been raised, Dr. Vernon, as to the importance or nonimportance of the cartel situation in Switzerland. Did not Congress specifically declare it to be important in con-

nection with the operations of the Reciprocal Trade Act? You were applying it, I judge, specifically to the economic aspects of the thing, and the economic and defense aspects. Do we, Mr. Chairman, concern ourselves with legislative aspects of the cartel system?

Representative BOLLING. Of course, we can concern ourselves with anything we wish, Senator Flanders, but the testimony that we expect to hear primarily on this subject, we anticipate will come on Wednesday.

The questions that are raised today are to build a general base, I would assume. We had not contemplated, in the time available, going into that specific area at any great length.

Dr. VERNON. Mr. Chairman, may I say something general on this point?

Representative BOLLING. Yes.

Dr. VERNON. I am speaking from memory, Senator, and my memory could be wrong, but my recollection is that to the extent there has been congressional intent expressed in this field, it finds its place in a provision of the Trade Agreements Act which gives the President the right, permissively, to withhold most favored nations treatment from the country concerned.

In this context this would mean that the President could withdraw from the Swiss the right to obtain the benefits negotiated under the Trade Agreements Act with respect to watch imports. But this, as I recall it, is permissive, and I think the Congress was wise in making it permissive, since it cannot foresee the circumstances in which the President might be wise to maintain a low tariff on a cartelized product.

Senator DOUGLAS. I say that does not apply, but in addition to what my friend and colleague from Vermont has said about the congressional intent in cartel matters, I think it can be briefly summarized: It is wrong for foreigners to practice cartels, but it is proper for Americans. [Laughter.]

Representative BOLLING. Congressman Curtis, you had further questions?

Representative CURTIS. Mr. Chairman, I had one more question, but I think what I will do is make it in the form of a statement, so if anyone wishes to, he can comment on it.

I have always been intrigued with these hearings, having gone on the hearings on OTC and other hearings, with the expression that Dr. Barnett used in his paper, of free nations and the free world and, of course, as applied to this overall economic situation in attempting to determine what is meant by that label, I have come to the conclusion that it is really a negative term, unfortunately, which means not within the Soviet bloc, rather than an affirmative term to get down to what we conceive to be a free nation. And I suspect if we would get beneath the label and get down to the ideology involved of these other nations, that we might begin to come out of this wilderness; maybe not.

But I was intrigued with what Dr. Barnett said, and how Dr. Barnett might define a free nation or the free world. In this trade aspect, in my judgment, we have some mighty unfree nations in this classification of free world, and probably it is only because of their geographical distance from the Soviet orbit that puts them into this classification.

And yet, in our economics, in our dealings in trade, what are our ideologies in regard to how human beings should be living in relation to each other, and their own government, becomes of basic importance.

That is the thinking I am interested in from the standpoint of our trade policies, and of any reliance we can place upon these other nations in the event it ever comes to a choosing-up of sides in an actual hot war. So if I may just leave that as a comment; and if you would care to supply something for the record, I would appreciate it.

Dr. BARNETT. Let me make only a very brief oral comment in answer to yourself and to Senator Douglas' question concerning the stanchness of Switzerland's democratic ideals and their anticommunism, and whether in fact they would be adversely affected by measures which we might take.

Senator DOUGLAS. Let me say there is no question they are anti-communist, and there is no question they are democratic. I think there is also no question that they would be our allies under any circumstances.

Dr. BARNETT. I meant to state it as the assumption, Senator Douglas, from which your question then derived.

There are 3 groups affected by, and 3 sets of responses to, any act we take with respect to this traditionally democratic and anticommunist nation.

One group is the Swiss and the actions to which they might be impelled; this has been discussed. Another group which will feel the consequences of import restrictions would be the United States, a complicated and difficult country to administer and make policy for. It is terribly difficult to visualize, knowing our governmental hierarchy as a many-layered one, that there would not be propagation of import restriction precedent and policy from this case of a nation whose anticommunism is without question to other nations, with which we are allied. In short, I would emphasize that even though Switzerland is not an ally, we can damage ourselves. Our future decisions with respect to actual allies will inevitably be influenced by this one. There is a third group's responses involved here, those of actual allies.

Now, in two ways, it seems to me, these can be adverse. I am not suggesting they would necessarily be, but they could be. One of the ways is that our allies might realistically appraise this type of decision as policy and precedent, and (using Senator Douglas' figure) shout before they are hurt, because they know that the swing has already started. Another way stems from the present situation with respect to dollar exchange. Switzerland, while it accumulated dollar exchange at one point, is not now, to my knowledge, piling up dollar exchange. So that some of the dollars which reach Switzerland subsequently wind up in another European nation which uses it for urgent purchases from the United States.

Thus I would argue that precise itemization of whether a country is an ally, for example, as indicated by whether we have bases there, is really less important than characterization of them as a group hostile to Russia, as a group with which we wish to maintain close relations, as a group which is part of a free world.

This is, as Representative Curtis has said, partly a negative description. But the question is one of practical usefulness. It seems to me that in the dollar effect, in the interpretation by allies of our treat-

ment of them, as our policy for our own guidance, this conception of "free world" is a practical and useful description at this point.

Representative CURTIS. Thank you.

Representative BOLLING. Are there further questions?

Any further comments?

If not, I wish to thank you gentlemen on behalf of the subcommittee. We appreciate your taking your time to be with us.

The subcommittee will adjourn until tomorrow at 9:30 in this same room.

(The paper entitled "A Bridge Between Conflicting Criteria—The Developmental Tariff," is as follows:)

A BRIDGE BETWEEN CONFLICTING CRITERIA—THE DEVELOPMENTAL TARIFF

A paper submitted by Prof. Josef Solterer, B. S., A. M., Ph. D., D. Sc. (h. c.), chairman, department of economics, Georgetown University

STATEMENT OF PROBLEM

The Subcommittee on Foreign Economic Policy wishes to consider the following three questions:

(a) The criteria which are to be used in determining defense essentiality of domestic industries in the light of the requirements of the mobilization base.

(b) The extent to which such criteria take into account the needs and requirements of foreign economic policy and the relation of such requirements to the mobilization base.

(c) The advantages and disadvantages of the alternatives to import restrictions as a means of insuring the maintenance of domestic industries at levels sufficient to meet the needs of national security.

The reconsideration of these criteria is made at this time because many industries have recently applied for relief from foreign competition, claiming special preference because of defense essentiality. At the same time, our Government in its foreign economic policy is seeking liberalization of world trade. The increasing demand for exemption at the same time as tariffs are lowered or expected to be lowered suggests that there is a conflict between the requirements of mobilization and the mentioned policy of our Government.

In planning for defense we are concerned, to a large degree, with providing the technological basis for a war effort with a specific national goal at variance with other national goals. In the foreign economic policy, we are dealing with the allocation of resources throughout the world and so are concerned also with a common end of all nations.

The defense goal is commonly regarded as technological. Planning is for a specific technological end, either already in the mind of the planner or viewed as likely. The goal of foreign economic policy, on the other hand, liberalizing world trade, embodies no specific technologies but rather the change of these.

The embarrassing conflict between these two ends might be reduced if, in the case of a nuclear war, the suddenness of attack and the widespread destruction of industry would make impossible an orderly conversion of industry to war uses according to preexisting plans. It has been argued that only weapons in being and perhaps a small group of people of high level adaptability in many employments of industry would be called essential.

In this case the conflict between the ends of mobilization planning and the ends of our economic foreign policy would be minor, perhaps negligible. With the exceptions mentioned, it is said that no one industry would be any more essential to national defense than any other. The Director of the Office of Defense Mobilization on this theory could deny any application for relief from foreign competition on grounds of essentiality.

It is interesting to note that this concept of weapons in being as decisive appeared also in the First World War. The then existing British Grand Fleet and the German High Sea Fleet were taken as such weapons in being, capable of deciding the war in very much the same way as it is now thought nuclear weapons would decide such a war. However, it turned out that these weapons in being

largely neutralized each other and were not decisive. Instead, the war became a military and technological struggle in quite different directions. Not the fleet in being, but submarines, tanks, masses of artillery and men, and new technologies were brought to bear. The same thing occurred with poison gas and other fearful weapons during the second war. They were not used because of fear of retaliation.

In view of this experience, we must not consider present weapons in being as decisive, but assume that a future war will again be won with yet unknown means. A more realistic view includes the necessity of continued technological planning, as long as the war remains threatening, for no one can state when it will come or whether it will come at all.

Rejecting the view of weapons in being, preparation for all eventuality must consider planning with technologies which are already existing or are in view. The prevailing definition of defense essentiality is largely in terms of technology, as revised from time to time.¹ However, it contains also economic notions which turn on substitutability of industrial processes. Technological essentiality of an industry strictly speaking exists if this industry produces a commodity or service which is indispensable within a framework of already existing technologies or skills.

Technological essentiality will always be a necessary criterion of importance for the defense effort as long as a war is fought with specific weapons at a particular time.

But it will not be a sufficient criterion. It does not take into consideration that rapid innovation may make tomorrow an industry unessential which is essential today and vice versa, or make all industries equally essential, or even, as in the weapons-in-being view, no one essential because the weapons already exist.

Since yet unknown innovations do appear, the technological criteria must be supplemented by economic criteria. This actually occurred in the past two world wars in which we passed from the war of soldiers or technicians to a war between economies in which the economic allocation of most commodities and services and search for alternatives and innovations became the rule. The aim of these war economies became to produce more of everything. Those economic criteria must refer to an increase of capacity to produce.

General capacity to produce depends on the organization of all industries or on their relations, and not simply on the efforts of any one. If, for example, a monopoly in one should prevent expansion of total productive power, we would say it is essential to remove that restriction. A prudent war effort must find criteria for maximum technological capacity as well as for maximum national capacity to produce.

We leave the definition of the short-run technological criteria of essentiality to the industrial engineers and the military and shall deal only with the economic aspect of essentiality.

Our problem now is, What criteria, dealing with economic organization, must be added to those of technological essentiality to indicate the largest increase of national productive power needed under conditions of changing technologies?

COMPENSATING POWER AND INCREASING CAPACITY TO PRODUCE

The problem so stated brings us at once into contact with foreign economic policy because the capacity to produce depends on international economic relations.

We lay down as our guiding principle the proposition that general capacity to produce is a maximum if no firm or industry possesses economic power which will hinder the development of another capacity to produce in such a way as to retard total capacity to produce.

This principle is in agreement with the widely accepted doctrine that competition is the main force of economic development. In the context of international economic relations rather than of international trade, it is akin to, but more general than, the principle of comparative advantage. Let us note, however,

¹ Cf. U. S. Tariff Commission, War Changes in Industry Series, Rept. No. 20 (1947), p. 123; U. S. Tariff Commission, Report to the President on Escape Clause Investigation No. 26 (1952), pp. 19-20; National Security Resources Board, Release NSRB-6950 (re memorandum of Chairman; NSRB to the Assistant to the President) (1953); Interdepartmental Committee on the Jeweled Watch Industry, Report to the Director of the Office of Defense Mobilization (1954), p. 28; Essentiality of the American Watch and Clock Industry. Report of Preparedness Subcommittee No. 6 of the Committee on Armed Services, U. S. Senate, S. Res. 86, 83d Cong., U. S. Government Printing Office, Washington, 1954.

that the competition implied in the latter doctrine is competition among equals, none of whom has significant power over the market. The more general principle, on the other hand, turns on development; i. e., on changes of productive techniques. However, modern innovation requires large organizations, heavy expenditures on research. Galbraith has indicated² that the large corporation is an ideal instrument of pushing innovation, financially and technically. Other organizations, such as trade associations, labor unions, can serve in the same way. In other words, grouping in order to assemble power of disposition in the hands of the innovator appears necessarily associated with innovation. Boulding, in his *Organizational Revolution*,³ has characterized this economic phenomenon as one of the most striking aspects of our modern economic structure.

This grouping, besides furthering innovation and capacity to produce, also generates monopoly power in restraint of trade. In view of this state of affairs we have to revise our concept of competition. We must do this because if we consider the power of corporations or other groups simply as monopoly power and eliminated it, we would also reduce the innovational growth of our capacity to produce.

In the state of rapid innovation and increase of capacity to produce, we will therefore have an inequality of power. This inequality of power, arising from innovation and organization, may also limit total capacity to produce. This paper deals explicitly with this aspect in foreign economic policy.

The revision of the concept of competition, made necessary by the presence of large corporations or organized competitors, has appeared in the professional literature in various forms: Chamberlin and Joan Robinson speak of monopolistic or imperfect competition (*The Theory of Monopolistic Competition*, Harvard University Press, Cambridge, 1935); J. M. Clark speaks of workable competition (*Toward Workable Competition*, *American Economic Review*, June 1940); R. M. Robertson speaks of competition between multiproduct firms (*On the Change of the Apparatus of Competition*, *Proceedings, American Economic Association*, May 1954); and finally Galbraith, who considers the offsetting of exploitative power by countervailing power on the two sides of the market (*American Capitalism*, Houghton Mifflin, New York, 1953). All of these recognize, implicitly or explicitly, that the emergence of new rival products (substitutes) or even merely potential competition, or of countervailing power, serve in a similar way as substitution of one seller for another in the classical price competition. However, their new competition leads to a state of higher all-around productive power than would be obtainable by enforcing price competition among many powerless competitors. This new competition under active innovation mitigates the power of anyone to hinder the other's innovation. It is distinguished from the old concept of perfect competition in that there may be only one or a few competitors in a particular branch of industry, or in any one particular market.

Considering now the essentiality criterion, we come to the following conclusion: It is essential for maximum capacity to produce that there be compensating power in case of any organized producer. This may be provided spontaneously by new firms, producing substitutes, or by potential competition, or by an organization providing countervailing power, or by self-restraint.

Domestically we actually have several agencies, such as the courts, Federal Trade Commission, and Congress itself, which distinguish between monopoly power and mere general capacity to produce, when the situation is such that the classical requirements of competition are not met.

In the international field, however, this separation of the monopoly power from the productive power is not achieved by a similar extensive machinery. We do have the Webb-Pomerene associations which can provide compensating power in competition abroad. But if the domestic producer or potential producer meets the foreign producer here, he must depend on the Government for such power compensation. This can be done in a variety of ways of which we shall consider first the developmental tariff.

THE DEVELOPMENTAL TARIFF AS COMPENSATING POWER

The reasoning presented is closely akin to the infant-industry argument, which is widely accepted. The difference is that the present argument refers also to compensating power for already existing industries and not only to infant

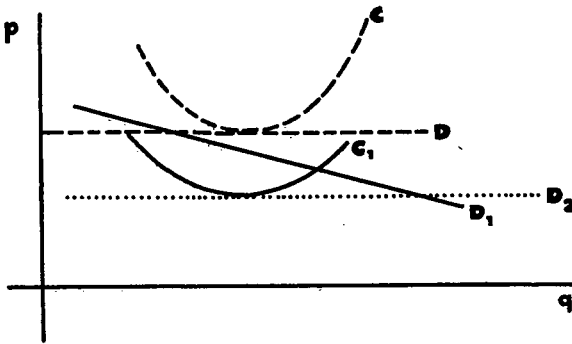
² Cf. J. K. Galbraith, *American Capitalism*, Houghton Mifflin Co., Boston, 1952.

³ K. Boulding, *Organizational Revolution*, Houghton Mifflin Co., New York, 1953.

industries. Moreover, our argument is also akin to the yardstick doctrine, which was widely discussed at the time of the formation of the TVA. The costs in this public enterprise were to serve as a control measure for the electric industry where power of production and monopoly power were undifferentiated. This could be done because the TVA services were substitutes for those of private utility companies.

American foreign economic policy is aiming at the liberalization of world trade. Now if it were true that production for international trade were competitive in the classical sense of perfect competition, we should simply demand an all-around reduction of tariff, aside from the uneconomical production and maintenance of industries declared technologically essential. But that is not the situation. Monopoloid trade associations and cartels are the rule on all sides. As indicated, these need not be of predatory nature but must be expected as consequences of innovation or defenses against loss of liquidity in times of depression. Hence, many industrialists have shown understandable reluctance to accept a simple free trade policy because they, as practical men, are in many cases aware of the excess of power of their foreign competitors. As a matter of fact, no one in his senses today advocates an all-around free trade policy. This fact alone is a recognition of the difference between power to produce and monopoly power.

A tariff policy, aimed at equalization of power positions, may be an instrument for increasing productive capacity. A tariff which increases competition is not protection of inefficient producers at the expense of the consumer; if it provides compensating power it clears the way so that all parties can utilize their technological resources. Only in a case of neutralized economic power does the principle of comparative advantage produce its salutary effect. The distinction between the power to be neutralized and increased capacity to produce can be illustrated by the following graph:



The innovating organization has succeeded in lowering the cost curve from C to C_1 . But because his innovation required an organization, he acquired the power of shifting his sales curve from its horizontal (competitive) position D to one which slopes to the right, D_1 . The drop of cost is a measure of his capacity to produce, the increase in slope of the demand curve, a measure of his monopoly power. The task is to flatten that sales curve to D_2 without shifting the cost curve in an upward direction.

A tariff, granted to an industry confronting a foreign organized competitor who has economic power, gives staying power to the domestic competitor. This staying power is reflected in the flattening of the sales curve, describing a condition in which both parties have equal access to the markets, full utilization of their technologies, and capacity of development. This should not be understood to mean that any inefficient producer, incapable of development, may receive such assistance. Such a procedure would obviously not increase total productive power.

CONDITIONS FOR GRANTING DEVELOPMENTAL TARIFFS

The question is, therefore, this: What are the conditions of eligibility for such tariff action? A cost⁴ differential between organized foreign and unorgan-

⁴ The term cost here means all expenses including normal profit.

ized domestic industry cannot serve as criterion of eligibility, though it may serve as a possible initial measure of the developmental tariff. This measure of the tariff could prove to be either too high or too low in the light of consequent developments in meeting the criteria for a developmental tariff, to be set forth below. If the economic cost differential were eliminated by tariff, the instantaneous effect would be the elimination of price competition. However, where the tariff is a developmental tariff with its prerequisite criteria fully applicable, such a tariff would induce development and price competition would be reestablished.

The difference between domestic costs and landed price of imported goods is also ineligible as a criterion of the monopoly power of the foreign producers to be compensated. Relatively high domestic costs may be only an indication of the low efficiency here and the low import price an indication of the high efficiency abroad. If this were the case, the disappearance of the domestic industry would be called for if the aim be to maximize productive power.

All of the following conditions must be met to make an industry eligible for the developmental tariff. If we can show evidence that monopoly power of the foreign competition is exercised in a restrictive way, there is the presumption that the productive power all around is not as high as it can be without it. This is the first condition to be met if a tariff is to function as compensating power which goes with an increase of capacity to produce. If power of the foreign competitor is already matched elsewhere, and if the delivered costs then cannot be met by the domestic industry, support by tariff is not indicated. If the imposition of the tariff would involve a sizable change in current domestic price (the case of inelastic demand) and a general disturbance would follow, the tariff measure should not be adopted, because this disturbance would reduce general productive power. Besides the demonstrated unmatched monopoly power of the competitor, claimed to be superior, developmental tariff support requires also from the domestic industry seeking it that it give evidence that it is developing economically and technologically and is not simply attempting to preserve the status quo. The industry which meets the mentioned criteria must give evidence that it be on or near the product changing margin. At the product changing margin the total production of that industry ceases and the ability to return to that production is lost. If the industry is not on or near this margin, competition against the foreign organization can continue without the tariff.

Finally, since we are concerned with an increase of economic power in general, the foreign producer must not be driven from the industry altogether for then compensating power toward the domestic producer would be destroyed.

Thus we arrive at five criteria for a justifiable developmental tariff increase aiming at increasing productive capacity. First, the foreign competitor must exercise his monopoly or restraining power not matched elsewhere; secondly, the industry seeking the tariff must show evidence of development; thirdly the industry seeking the tariff must be on or near the product changing margin; fourthly, the tariff must not cause undue disturbance at home; fifthly, the foreign industry must not be hindered in its development.

The considerations given here merely formalize and suggest for systematic use defense against monopoly which have been employed often in the past in time of stress. By and large, 19th century American industry increased in productive power with high tariff rates rather than stagnated, which is often claimed to be the necessary consequence of protection. Of course, these may have been too high in some cases or not only compensating. The task as indicated is to find the compensating rates.

For this purpose the five economic criteria for essentiality are offered for consideration. It should be repeated that technological criteria must be applied independently of economic criteria. The inevitable disagreement between these two is a measure of the cost of war.

If both tests are passed, a tariff will assure a double contribution to defense, technological and economic.

ALTERNATIVES TO DEVELOPMENTAL TARIFF

There are alternatives to the proposed developmental tariff treatment, which have been considered.

(Cf. a report to the Director of the Office of Defense Mobilization on the essentiality to national security of the American watch industry, July 30, 1954.)

These were: Advance procurement by the Government; preferential procurement of other products; quotas; subsidies.

The report mentioned above considered essentiality exclusively from the short-run technological point of view, although it recognized that the best long-run answer to the maintenance of the skill and facilities base is a healthy competitive industry (p. 24).

Not having considered specifically the problem of economic aspects of essentiality, all these measures were lumped together and declared to have one or a combination of the following disadvantages: Higher prices to the consumer, increased Government cost, direct Government intervention in the affairs of the companies, inhibition of competitive stimuli, or governmental policy to curtail rather than to extend international trade with concomitant political and economic effects. The committee did not inquire into nor recommend any or a combination of these measures.

Our inquiry into the long-range effects of these measures permits us to go a few steps further on grounds of principle. The developmental tariff, as outlined, establishes the framework in which international competition, not falsified by monopoly position, determines the division of labor which goes with highest capacity to produce. The act of the Government to establish such a tariff is not arbitrary interference in a naturally competitive situation but rather a policy of establishing a framework such that this competition among developing industries can take place. The prices in this framework of compensated power are really the naturally competitive prices rather than those which would result if a powerful organization prevented the development of economically viable industry. As was indicated before, not every industry claiming to be viable and calling for developmental tariffs will necessarily be eligible according to the tests proposed.

Turning now to alternatives of such tariff, it is noted that neither advance procurement, nor preferential treatment in procurement exposes the industry to international competition in the same degree as the tariff. They provide secure markets, and are acceptable devices only on grounds of short-run technological criteria of essentiality. Imposition of quotas and granting of subsidies are alternative to the tariff and must meet the same conditions required when applying the developmental tariff.

However, all procedures must remain in the arsenal of the economic policy-maker preparing for a war eventuality, because it is not possible to reduce all conflicting technological and economic aims to each other. It is possible to say that only grave technological reasons would override the economic criteria because technologies are variable and the economic requirements remain. The developmental tariff is therefore the most important even though not always the best strategic measure of this group.

The essentiality of the American watch industry is now under consideration by the Government. We shall now analyze the economic conditions of the United States and Swiss watch industries, as well as the effect of the United States tariff increase on each and then apply the criteria for the developmental tariff to it.

THE COMPOSITION OF THE DOMESTIC JEWELED WATCH INDUSTRY

PREFACE

The competitive supply of watches in the United States market

There are four companies with facilities for the production of jeweled watch movements in the United States. Their names and the location of their watch plants are indicated below:

Bulova Watch Co., Flushing, N. Y.
 Elgin National Watch Co., Elgin, Ill., and Lincoln, Nebr.
 Hamilton Watch Co., Lancaster, Pa.
 Waltham Watch Co., Waltham, Mass.

These companies own other plants which are engaged in manufacturing operations other than jeweled watches. A number of other companies have domestic facilities for the production of nonjeweled watches and clocks, which are called pin-lever watches.

The other major watch companies in the United States, such as Longines-Wittnauer, Gruen, and Benrus, do not have facilities for the production of jeweled watch movements in the United States. Gruen has a plant with considerable machinery in Cincinnati but so far as is known produces only limited quantities of parts. These companies and dozens of others which have entered

the business since World War II merely import movements from Switzerland and insert them into watchcases, attach straps, and offer them to retail outlets for sale. Many of these importers purchase their watches from Switzerland already cased. Several of the larger importers own Swiss plants and are members of the Swiss cartel. About 300 firms are engaged in importing watches, movements and clocks. Most importers handle only jeweled lever watches.

The Sherman Antitrust Act and the Clayton and Robinson-Patman Acts of the United States prevent the domestic jeweled watch industry from considering cartel measures. Competition exists among the United States jeweled watch producers as well as between watch movement importers and the jeweled watch producers.

The Swiss watch and watch movement producers have, for many years, been the major suppliers in the United States market. Since the 1920's, the United States imports of Swiss watch movements have not been lower than 60 percent of the total apparent United States consumption during the period from 1931 to 1935. The share increased to 80 percent during the World War II years and dropped to 75 percent during the 1946-50 period. This postwar level increased to 81 percent in 1954 and fell to 77 percent in 1955. These results are given in table I.

TABLE I.—United States production, imports, and consumption of watch movements

Period	United States imports, watch movements with 2 or more jewels (excluding small clocks)	Domestic production, 2 jewels and over	Total apparent United States consumption	Percent imports of total	Percent domestic production of total
	Thousands	Thousands	Thousands		
Average, 1926-30.....	2,780	1,836	4,616	60	40
Average, 1931-35.....	730	781	1,511	48	52
1936 Swiss trade agreement: Average, 1936-40.....	2,639	1,678	4,317	61	39
World War II: Average, 1941-45.....	6,445	1,602	8,047	80	20
Post-World War II:					
Average, 1946-50.....	7,399	2,475	9,874	75	25
1951.....	7,884	3,102	10,986	72	28
1952.....	7,757	2,385	10,142	76	24
1953.....	8,919	2,333	11,252	79	21
1954.....	7,390	1,716	9,106	81	19
1955.....	6,359	1,926	8,285	77	23
Average, 1951-55.....	7,709	2,290	9,954	77	23

† Source: Import data for 1926-53 taken from U. S. Tariff Commission Report on Escape Clause Investigation No. 26, May 1954, table 3; for 1954 and 1955 from Bureau of Census FT 110, adjusted by elimination of 90 percent of 2 to 7 jewel movements over 1.5 inches in width, which are estimated to be small clock movements.

DEVELOPMENT WITHIN THE UNITED STATES JEWELLED WATCH INDUSTRY

During World War II the United States watchmaking facilities were devoted almost 100 percent to war work and their commercial sales were restricted for the most part to liquidation of inventory.⁵ The Swiss, on the other hand, were permitted by the Germans to make commercial watches for shipment to the United States in great quantities, in exchange for assistance to the German war materiel, especially fuses. The Swiss accordingly had virtually a monopoly in the American watch market.

The United States watch industry in 1948 was producing nearly all products for civilian consumption. The shift since that time has been into production of defense items. Table II shows civilian items in 1954 to compose 43.4 percent of the total production of the jeweled watch industry. Since 1953 time fuses and fuse components have constituted almost 50 percent of the total output. Between September 1952 and September 1953 there occurred a 5-percent decrease in employment with a 12-percent decline in the number of workers employed in the production of civilian products. This decline was partly offset by an

⁵ U. S. Tariff Commission, *Watches, War Changes in Industry Series No. 20*, Government Printing Office, 1947, p. 23.

Increase in the number of workers in the key occupations producing military items.⁶

TABLE II.—*Percent distribution of production worker man-hours by defense and civilian production in the jeweled-watch industry*

Production item	1954	1953	1952	1951	1950	1949	1948
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total defense items	56.6	44.7	31.1	11.4	2.5	1.1	.1
Military timepieces	5.2	3.6	4.9	2.2	1.3	.9	
Time fuzes	27.3	25.1	12.5	3.2			
Fuze components	21.8	12.3	7.4	3.5	.5		
Other military procurement items	2.3	3.7	6.3	2.5	.7	.2	
Total civilian items	43.4	55.3	68.9	88.6	97.5	98.9	99.9
Jeweled watch movements			66.2	85.4	94.4	96.1	96.7
Clock movements			.5	.5	.5	.4	.3
Other products and components			2.2	2.7	2.6	2.4	2.9

Source: Interdepartmental Committee on the Jeweled Watch Industry. A Report to the Director of the Office of Defense Mobilization on the Essentiality to National Security of the American Jeweled Watch Industry, 1954, p. 10.

The domestic jeweled watch industry has made significant technological advancements. The assembly lines were introduced in 1946. One company used to require 400 workers to assemble 1,200 watches per day; it now can assemble the same number with only 45 to 50 workers. This reduction of assembly workers has, to some extent, increased the requirements for parts manufacturing workers due to the increased precision of components required for mass production assembly. The increased productivity is shown as follows:⁷

Period	Output per employee	Index, 1936-40=100
Average 1936-40	259	100
Average 1941-45	212	82
Average 1946-50	266	103
1951	357	138
1952	340	131
1953	359	139

Each of the domestic-jeweled watch companies has a research and development department which carries on programs directed toward the improvement in the quality and style of their watches. In recent years these departments have also been carrying a major part of the planning responsibility for the programs of diversification on which they are each embarked.

One development to result from the research activities of the industry in the past few years is the electronic watch. This has been brought to a high stage of development but not yet marketed.

Advances in styling and concept are exemplified by the time zone watch and the direct reading watch. The latter, instead of having the customary dial and hands, has a solid metal front with an opening at the location where the numeral 6 is customarily found. In this opening there appears in numerals the time of day.

Many developments have been achieved by the domestic companies in watch technology proper such as new alloys possessing qualities of superior advantage in watches, such as temperature compensation, isochronal characteristics, and anticorrosion and antimagnetic characteristic hairsprings and mainsprings. Electronic timers and hairspring vibrators to facilitate the testing of watches and parts during and after assembly have also been developed by the domestic companies. The industry maintains fellowships at research foundations, e. g., the Elgin National Watch Co. at the Armour Research Foundation of Illinois Institute of Technology, Mellon Institute, Battelle Memorial Institute.

⁶ Interdepartmental Committee on the Jeweled Watch Industry, A Report to the Director of the Office of Defense Mobilization on the Essentiality to National Security of the American Jeweled Watch Industry, p. 8.

⁷ Op. cit., Interdepartmental Committee on the Jeweled Watch Industry. A Report to the Director of the Office of Defense Mobilization on the Essentiality to National Security of the American Jeweled Watch Industry, June 30, 1954, pp. 12-13.

Highly specialized synthetic oils have been developed for watches and other precision instruments. Vehicles for polishing compounds to carry precision-grade abrasives used in the processing of metals have been developed by one of the companies. Precision casting methods for plastics and resins and new plastic adhesives which are unaffected by solvents and temperatures have been developed in the industry's laboratories. Each of the domestic companies (with the possible exception of Waltham), maintains extensive design and style laboratory facilities which serve to keep the industry's products in the forefront of styling advances in the watch market.

Industry statements to the Department of Commerce indicate that significant research and development contributions have been, and are being, made by this industry on the following military programs:⁸ (1) Improvement and standardization of mechanical time fuzes; (2) development of electromechanical and electrical time fuzes; (3) fuze miniaturization; (4) development of low-temperature lubricants for precision mechanisms; (5) development of timing release mechanisms for instrument parachutes; (6) development of gear-autosyn units for converter and radio magnetic indicators; (7) development of production methods for piezoelectric quartz crystals; (8) research on mass production of jewel bearings and developing domestic source for producing jewel bearings; (9) research on aerial cameras; (10) development of new types of timepieces such as break circuit chronometers, memory chronographs and underwater watches for frogmen; (11) redesign and improvement of aircraft clocks; (12) research and development of gyro, safety, timing, and arming mechanisms for six types of guided missiles, including both ground-to-air and air-to-air systems.

There can be no doubt that the American jeweled-watch industry is one which stands ready to meet uncertain future demands on the part of defense needs or civilian needs where skill and technology of the watch industry can be applied. The technology is ever changing in order to better meet these demands as they arise.

THE ORGANIZATION AND STRATEGY OF THE SWISS WATCH INDUSTRY

A. THE ORGANIZATION

The Swiss watch industry consists for the most part of numerous small- and medium-sized enterprises which can be divided into two broad groups:

(a) Enterprises manufacturing component parts, such as ebauches, escapements, mainsprings, hairsprings, dials, cases, etc., and

(b) Companies which manufacture complete watch movements or which assemble watches. The manufacturers are distinguished from assemblers in that the former have the right to produce certain component parts, in particular, ebauches, in their own shops, whereas the latter do not.

Each of these groups contains a great many subdivisions, for the industry is highly specialized along functional lines. As a matter of fact the approximately 80 different parts making up a watch are produced in no less than 20 different types of plants.

This extraordinary degree of specialization has led, in the period since 1924 and in particular since the depression of the thirties, to the formation of a system of interlocking trusts and cartels. Since the early 1940's the system has included and regulated every member of the industry. The organization and control of the Swiss watch industry can be described under the following four headings:

(1) The trusts;

(2) The cartels;

(3) The articles of agreement governing all watch production and distribution;

(4) The position of the Swiss Government in the industry.

1. (a) *The trusts*.—The production of certain subassemblies and of specialized parts is concentrated in the hands of the following four trusts:

(i) Ebauches, S. A. (ebauches);

(ii) Les Fabriques d'Assortiments Réunies, S. A. (escapements);

(iii) Les Fabriques d'Balanciers Réunies, S. A. (balance wheels);

(iv) La Societe des Fabriques de Spiraux Réunies, S. A. (hairsprings).

For all intents and purposes each of these trusts enjoys a complete monopoly over the production and sale of the subassemblies or parts indicated, with but

⁸ *Ibid.*, pp. 16-17.

one notable exception. The manufacturers of watches (as distinguished above from the "assemblers") may produce, for incorporation into their own product, ebauches and certain other parts. However, they may not sell these to other firms. (An exception exists even to this rule which represents a carryover from the competitive days of the industry. Certain manufacturers have retained the right to sell ebauches to other enterprises, but only on a limited basis:)

(v) L'Association d'Industriels Suisse de la Montre Roskopf (the Roskopf group) was organized in 1939 as a cartel. Its purpose was to establish and enforce minimum price lists, quality standards, and other fair trade practices among manufacturers and assemblers of Roskopf watches, a nonjewel watch. In recent years, the Roskopf group has been brought under the control of Super-Holding, an organization presently to be described.

(b) *Super-Holding*.—L'Association Générale de l'Horlogerie Suisse, S. A., or Super-Holding, was founded in 1931 to control the policies and operations of the four trusts just mentioned ((i) through (iv) above), at that time in process of their ascendancy. As a holding company, it exercises monopoly power over the production and sale of the subassemblies and parts which are the specialties of those subsidiary trusts. Super-Holding is governed by a general assembly or board of directors whose members are elected on the following basis. Five-sixteenths of the votes are controlled by a syndicate of the banks from the horological cantons, six-sixteenths of the votes are controlled by the Swiss Government, and the remaining five-sixteenths of the votes are controlled by Ebauches, S. A., and two other cartels, F. H. and U. B. A. H., described below. Super-Holding is therefore a quasi-public trust, a fact which involves the Swiss nation in the competitive struggle for horological markets throughout the world.

2. *The Cartels*.—The picture before us so far shows a powerful and fully integrated monopoly on the side of certain strategic subassemblies and parts. Is this organization matched on the side of the watch manufacturers, and in particular of the assemblers who are entirely dependent on the trusts and on other parts firms for their materiel? The answer is in the affirmative.

(a) La Fédération Suisse des Associations de Fabricants d'Horlogerie (F. H. hereafter), is precisely that organization. In contradistinction to the trusts, whose power rests on the ownership of controlling interests in their subsidiary enterprises, F. H. members are independently owned firms. What makes this group of firms a cartel is the fact that its members are bound together by an agreement of specified duration regarding cost accounting, price policy, conditions of payment, quality standards, etc.

The history of F. H. goes back to 1924, when it began as a federation of associations whose members constituted Swiss manufacturers of watches, with the exception of manufacturers of Roskopf watches. F. H. now is divided into 6 regional associations, and is governed by a 49-man assembly of delegates presided over by a 17-member central committee. The power of the assembly and of the central committee is formidable, since it is impossible to manufacture or assemble watches in Switzerland unless one is a member of F. H. Moreover, the price lists of F. H. have the force of public law by ordinance of the Federal Department of Public Economy (R. O. 55, Art. 4 de l'Ordonnance du 29 December 1939), and by subsequent legislation.

F. H. participates in the control of five-sixteenths of the votes and so participates in the control of the board of directors of Super-Holding.

(b) L'Union des Branches Annexes de l'Horlogerie (U. B. A. H. hereafter) is a cartel which binds together all producers of watch components, including firms doing custom work such as plating establishments. Also among them are the balance wheel trust and the escapement trust; the members of the hairspring trust participate more directly through their trade association. In other words, except for Ebauches, S. A., which is not a member, U. B. A. H. controls the entire area of parts production. It is primarily a price and sales condition cartel whose members are in their own spheres organizations of similar character. Needless to say, this network of agreements extends also to matters of cost calculations, quality standards, etc.

(c) Nor is that all. Lest any Swiss connected with watch production and sale be overlooked, a cartel has been founded between the Groupement des Fournisseurs d'Horlogerie, Marché Suisse (F. H. members and independent wholesalers in the Swiss market) and l'Association Suisse des Horlogers (the organization of retail associations). This cartel is known as la Convention Suisse. It obliges its members to buy and sell controlled products only within the fold of the organization, i. e., to practice "syndical reciprocity." Thus, the retailers

obtain monopoly rights to the sale of the best-known Swiss watches, each in its own market, in return for which they agree to charge prices fixed by the Fournisseurs.

Let us step back for a moment and review the organizational picture before us. What we have before us is an interlocking system of cartels and trusts, whose control rests in the hands of four partially overlapping organizations: F. H., Ebauches, S. A., UBAH and Super-Holding. These four share among themselves price fixing and related powers over the industry, which are virtually complete and all-inclusive. These powers are distributed and articulated by a comprehensive agreement called *La Convention Collective de l'Industrie Horlogere*.⁹

3. *La Convention Collective* is a formal agreement among F. H., Ebauches, S. A., and UBAH (hence indirectly Super-Holding) regarding inter alia (i) prices, (ii) sales conditions, (iii) conditions under which exports from Switzerland may take place, (iv) restrictions on the establishment of manufacturing facilities outside of Switzerland, including the help which Swiss firms or their connections may give to foreign horological enterprises, (v) regarding measures to enforce the provision of the Convention, and a vertiable forest of other matters.¹⁰ This collective agreement, first signed in 1931, and since revised at periodic intervals, provides for the integration and all-around enforcement of the cartel agreements of its signatories under the supervision of its governing bodies. Hence the *Convention Collective* is the super cartel governing the watch industry both in Switzerland and in its relations abroad.

The convention is governed by the *Délégation Réunies* which has, among others, the power to make exceptions to practically all the provisions of the convention. This body is composed of 6 representatives from F. H., 3 from Ebauches, S. A., and 3 from UBAH. In addition, there exists the *Tribunal Arbitraire*, the Court of Arbitration of the *Collective Convention of the Swiss Watchmaking Industry*, which decides all differences between the associations or between them and their members regarding the execution and interpretation of the convention.

In general, the purpose of the convention is to grant and preserve for its members both the purchase and sales monopolies in their respective spheres. This is called the principle of "syndical reciprocity" and it implies a pledge to keep trade channels closed to outsiders. Thus, F. H. agrees to buy all parts and ebauches which its members do not produce themselves from UBAH and from Ebauches, S. A. This is a matter of consequence since roughly three out of four watches produced in Switzerland are manufactured by assemblers, that is by firms which do not make their own parts. Similarly, Ebauches, S. A., agrees to buy all parts which its members do not manufacture in their own shops from UBAH, just as UBAH members are constrained to purchase only from each other.

The members of F. H. on the other hand, have a nearly complete monopsony over the purchase of Swiss-made ebauches, escapements, and other parts, and hence enjoy to the same degree the position of monopolistic sellers of Swiss-made watches throughout the world. The only imperfection in this monopsony position arises from the fact that certain French and German watch factories, which occupy a privileged position as traditional customers of Swiss ebauches plants and of firms making other components, may continue to buy from these for assembly in their own workshops. This privilege is, of course, conditional on the foreign firms' adherence to the terms of the *Convention Collective*.

The next point to be considered is that of the convention's price-fixing activities, but since each of the signatories is itself a price and sales condition cartel, or a trust exercising monopoly power, the problem is merely one of integrating, adopting and enforcing existing price schedules.¹¹ The result, looked at from the standpoint of any country which imports watches from Switzerland, is a price formula on the basis of which members firms of F. H., the sellers of Swiss-made watches, determine the lists of wholesale prices. According to the bylaws of F. H., watches must be priced at formula cost plus 25 percent, or if sold without case, at formula plus 30 percent. On this basis F. H. promulgates the so-called *prix de barrage* which apply throughout the

⁹ The operation of the Roskopf group are governed by a separate agreement, which, however, parallels the *Convention Collective* in all respects relevant to the present discussion.

¹⁰ The *Convention Collective* of April 1, 1949, ran, in its English translation, some 80 pages and contained 92 articles.

¹¹ Cf. Articles 11-14 of the convention, op. cit., 15-18.

world. The very name is interesting in this context. *Prix de barrage* literally means dam prices, that is, price levels held high by an artificial dam.

From the standpoint of the economist, a third aspect of the Convention Collective and of the subsidiary agreements of its member organizations is of great importance—that regarding the restrictions on free entry into the industry. Exemplifying again with reference to F. H., as a signatory of the convention, it is significant that the former agreed to admit only firms created before January 1, 1929, or such firms which have taken over the assets and liabilities of companies founded before that date. Since January 1949, however, the Department of Public Economy of Switzerland may require F. H. to grant membership to firms whose foundation the department may authorize on the basis of *Arrêté du Consul Fédéral*, Art. 4, December 23, 1948. In short, the association of watch manufacturers and assemblers (F. H.) can deny, and has denied, potential firms entry into the industry, although not against the wishes of the Government.

A further restriction of entry into the industry is implied by those provisions of the Convention Collective which seek to prevent the establishment of horological plants outside of Switzerland or to limit and even stop the operation if possible. We shall deal with instances of this form of restriction in the next major section (B).

A final aspect of the provisions limiting entry into the horological industry ought to be mentioned here. An agreement made pursuant to the articles of the convention between a group of United States importers and certain members of F. H. allocates¹² international markets in such a way as to deny these importers the right to reexport Swiss watches from the United States, except to designated countries in the Western Hemisphere; moreover, certain of these United States importers agreed not to deal in watches which are competitive with the Swiss name-brand watches which these importers handle, except with the consent of the Swiss manufacturers. In return, those manufacturers have allegedly granted exclusive distribution rights to various United States importers, and have undertaken to prevent the importation of such name-brand watches from any third country. This arrangement follows the classical pattern of international cartel agreements, complete with its scheme for the subdivision of world markets into several exclusive domains. Clearly, this amounts to limiting entry into the industry on the side of the distribution process throughout the world.

4. There remains the problem as to the Swiss Government's role in this entire matter. Two points will suffice here: (a) It must be understood that the Swiss Government has in fact—whatever the intent—helped to foster the growth of the cartels and trusts which today all but comprehend the entire industry. *Ebauches*, S. A., for example, owes its degree of monopoly to the *Arrêté du Consul Fédéral* of March 12, 1934, which forbade the founding, enlargement, or physical movement of horological enterprises, except when authorized by the Federal Department of Public Economy. But the department never authorized, in those years of depression, the founding of new *ebauches* factories. Hence, the trust *Ebauches*, S. A., which was founded in 1927, needed to concern itself only with the absorption or destruction of existing firms. The trust which holds the monopoly in regard to the manufacture of escapements had had a similar history.

Nor is that all. Since 1934 the Federal Department of Public Economy has been empowered to lend legal sanctions to the minimum price lists (*Prix de barrage*) which were promulgated by such organizations as F. H. The capstone of this development is the law of June 22, 1951, which substitutes permanent protective legislation in regard to the Swiss horological industry for the succession of temporary decrees, by which the Government protected and regulated the industry prior to that date. Since 1951, therefore, the system of cartels and trusts which we have described—to a large extent a product of depression years and of governmental policies to deal with depression problems in the watch industry—became fully established and integrated within the body of Swiss positive law. Hence, it is correct to say that the organizations of the Swiss watch industry possess a quasi-public character.

(b) The second remark pertains to the role played by the *Chambre Suisse de l'Horlogerie*. The *Chambre* is not a public institution in the full meaning of the term. Nevertheless, its operations have acquired, in certain respects, the force of public ordinances. For, by article 9 of the Federal decree of June 22, 1951, alluded to, the Federal Department of Public Economy may call on the

¹² Complaint, *United States v. The Watchmakers of Switzerland Information Center et al.*, Civil Action No. 96-170 (S. D. N. Y.), filed Oct. 19, 1954.

Chambre (and on the cantonal authorities) to "enforce" the Government's policy in regard to the industry. Accordingly, it is the Chambre's function to grant export licenses. Moreover, in cases in which foreign countries limit the importation of Swiss watches by means of quotas, the chambre allocates these quotas among the various firms. Finally, it also represents the industry in the negotiations regarding commercial treaties with foreign countries. In view of our entire discussion, its possession of such extensive powers is not surprising. On the contrary, these facts merely reinforce the view already expressed that the Swiss watchmaking industry speaks and acts in a unified manner both at home and abroad.

B. THE CARTEL'S STRATEGY

The point of the previous section has been to establish the fact that the Swiss watchmaking industry is, and has been since the early 1940's, a price, sales condition, and market allocation cartel. Moreover, as we shall show below, this cartel is powerful not only with respect to its members but also with respect to independent distributors and producers abroad who are connected with the industry. For the latter, too, are bound by the Convention Collective under penalty of losing access to all types of Swiss horological merchandise.

But all of the considerations so far pertain to organizational structure and to the instruments defining the distribution of power within the syndical framework. What needs to be done now is to inquire into the use made of that power through an examination of certain case histories or behavior patterns. In short, we turn now to the description of the cartel's strategy, which is the operational characteristic of monopolistic organizations.

The discussion will cover the following topics: (1) the limitation and reduction of watchmaking facilities in the United States; (2) price discrimination and price manipulation; (3) the strategy of "up-jeweling."

Let us begin by saying that the overall record of the Swiss cartel since 1948 is not one of obvious unfair competition or of sharp practice as these terms are generally understood. At the same time the Swiss are somewhat less than candid in regard to the facts of their operations so that it is not easy to rest assured with the generalization just made. But quite apart from that, and suspecting the Swiss of nothing but the most sterling behavior in the area of business ethics, the cartel and its subsidiary organizations necessarily act to preserve their position in world markets. That means protection against the growth of foreign competition.

However, in the context of dynamic technology in watchmaking, this cannot but imply behavior at variance with both the interests of other nations and, conceivably, of the world economy as a whole. For the protection of the Swiss watch industry under these dynamic conditions requires moves and stratagems designed to freeze and even to expand the position of the Swiss. Under conditions of technological development elsewhere, it is difficult or impossible to maintain one's relative position unless the effort is made to anticipate those developments and hence to expand.

Article 20 of the Convention Collective¹³ contains the provisions designed to reserve to the Swiss their dominating position in the world watch market. Section 1 forbids the signatories to enter into horological business transactions outside the convention in any manner whatever. This provision includes both dealings with nonmember manufacturers (sec. 2) as well as the granting of any aid whatever to nonmember firms trading in watches or watch material in a manner contrary to the Convention Collective (sec. 3 and sec. 4). In short, any firm desiring to have business relations with the Swiss watch industry must either sign the convention or agree to adhere to its provisions. Moreover, section 5 of article 20 specifically denies members (and by section 4, any firm wishing to deal with members) the right " * * * to create, advise, direct or represent [non-member or foreign] * * * firms * * *; to lend to them, invest capital in them, or purchase capital from them; to loan them, or to produce for them technicians, workers, etc., machinery, tools, models, plans, drawings, patents, etc., raw materials, small tools and supplies, etc., * * *."¹⁴

(a) It was pursuant to this article that the Gruen Watch Manufacturing Co., S. A., of Bienne, Switzerland (owned to the extent of 98.5 percent by the Gruen Watch Co. of Ohio), was fined 2,000 francs and court costs because Mr. Henri

¹³ Convention Collective, op. cit. 21-22.

¹⁴ Ibid., 22.

Thiéband, director of Gruen-Bienne and also vice president of Gruen-Ohio, twice traveled to Cincinnati in 1949 and 1950 in order to consult and advise there in matters of interest to the two companies.¹⁵ What gives this judgment its special flavor is the fact that after 1948 Gruen-Ohio began manufacturing specified types of watch movements and component parts, other components being imported from Switzerland, on the basis of an agreement between the two Gruen companies and F. H., Ebauches, S. A., and UBAH. That agreement was signed in January of 1941. Its terms, among others, specified (i) that Gruen-Ohio would restrict its production in the United States to an annual maximum of 75,000, (ii) that the company would refrain from importing component parts from any country except Switzerland, and (iii) that the company would import Swiss-made components only to the extent required by its production quota. This agreement represented, of course, an exception to the rules of article 20 of the convention.

In 1949 and in 1950 Gruen-Ohio's Cincinnati plant was in process of reorganization, and the two visits of Mr. Henri Thiéband were presented to the Swiss Court of Arbitration as evidence of giving aid to a nonmember of the convention under section 5 of article 20. The court ordered Mr. Thiéband to resign his position with Gruen-Ohio on the grounds that his services in that organization constitute a violation of section 5.

We cite this entire case here as evidence of Swiss sensitivity in regard to anything suggesting the export of Swiss watchmaking techniques; we cite it also as evidence of the firm hold which the cartel exercises over its members and their connections. In fact, the cartel's willingness to permit the two Gruen companies to manufacture limited amounts and types of watches in the United States is itself evidence of the power to maneuver. This concession would never have been made unless the cartel had confidence in its power to police the agreement of 1941 strictly. The Gruen case proves that this confidence was not misplaced.

(b) A second case exemplifying the cartel's ability and willingness to restrict and even to reduce horological manufacturing outside of Switzerland involves the Benrus Watch Co. Benrus of New York maintains manufacturing facilities in La Chaux de Fonds, Switzerland, and hence is a signatory of the Convention Collective. In 1938 Benrus bought out the Waterbury Clock Co. of Waterbury, Conn., and used it during World War II for defense work. According to the complaint filed by the Department of Justice in its action against the Swiss cartel organization,¹⁶ Benrus agreed with Super-Holding on or about January 1, 1945, " * * * to abandon its manufacture of watches and component parts within the United States and so to liquidate its manufacturing plant in the United States as to prevent any other existing or potential manufacturer from using it for horological manufacturing purposes * * *."¹⁷

Super-Holding, it will be recalled, is the quasi-public holding company which controls the trusts exercising monopoly power in the manufacture of escape-ments, balance wheels, and hairsprings, and is through them a participant in UBAH. UBAH, in turn, is one of the three principals of the Convention Collective, the others being F. H. and Ebauches, S. A.

(c) We add, finally, that the same Department of Justice complaint also charges the Bulova Watch Company of New York, which, like Benrus, maintains manufacturing facilities in Switzerland, with signing an agreement in 1948 with F. H., Ebauches, S. A., and UBAH, according to which, it is alleged, Bulova agreed (1) to restrict both the type and the volume of its American manufacturing activity, (2) to import component parts only from Switzerland, and (3) to refrain from importing component parts in excess of requirements indicated by the limited extent of its American production quota.¹⁸

Moreover, the Justice Department complaint charges Longines-Wittnauer, Eterna, S. A., Eterna, N. Y., Diethelm, N. Y., Rolex, S. A., Rolex, N. Y., Stern, N. Y., Rodana, N. Y., Cyma, N. Y., and Concord, N. Y., with entering into, adhering to, or effecting the provisions of the Convention Collective, such as " * * * to refrain from establishing watch and component parts manufacturing facilities within the United States, or to refrain from assisting any companies engaged in the watch business."¹⁹

¹⁵ For these and the subsequent facts, cf. Translation of the Judgment, handed down by the Court of Arbitration, session of September 21, 1950, at Bienne, Switzerland.

¹⁶ Civil action No. 96-170, filed October 19, 1954 (S. D., N. Y.).

¹⁷ *Ibid.*, par. 29 (a).

¹⁸ *Ibid.*, par. 30 (b).

¹⁹ *Ibid.*, par. 29 (b).

Thus, wherever we look, we see the principals and subsidiaries of the Swiss cartel moving vigorously and effectively to restrict, and in one case to reduce, the manufacture as well as the capacity to manufacture watches in the United States wherever these activities depend on firms connected with the Swiss industry.

Moreover, the agreements which embody these restrictions have been carefully and effectively policed by periodic audits of company books, complemented by the watchdog activities of certain of the companies connected with the Swiss industry. Violations of agreements are adjudged and punished by F. H. and Ebauches, S. A. In this general sphere, there can be no question of the cartel's power to maneuver and to apply strategy.

(d) A final instance of Swiss action to protect the position of its watchmaking industry against the development of foreign competition concerns the prohibitions against the export of certain horological machinery. For several years prior to World War II the Swiss Government, at the request of the industry, in effect prevented the exportation of such machinery. Following the war, however, the demand for these machines became so great (in the case of Great Britain it was backed by that country's Government) that a reconsideration of the embargo against those exports seemed desirable. The result displays all the characteristic behavior patterns so far described—patterns which are marked both by a degree of flexibility and by insistence on strict and effective control.

In 1946 the principal signatories of the Convention Collective, together with the Association of the Manufacturers of Special Machinery for the Watch Industry and the Union of Metal and Watch Workers, founded Machor, S. A. Machor is a holding company whose function it is to engage in the leasing of certain special watchmaking machines abroad. But strong strings were attached to this concession. Among these appear again the limitation of output, the abidance by the barrage prices promulgated under the convention, and the acceptance of other provisions of the convention.

In the case of the agreement of March 12, 1946, between the newly formed British watch industry association and the principals of the Swiss watch cartel, these conditions were accepted in exchange for a satisfactory quota for the import of Swiss watches into Great Britain. In addition, Machor, S. A. retained the right of inspecting the machines, and, what is more significant, of deciding which British firms were to receive the equipment in question. In this way Machor, S. A., and ultimately the Swiss cartel, retained the power to discipline directly violations of the agreement by the cancellation of particular leases. In such cases, the lessee may be required to return the machines to Switzerland at his own expense.²⁰

On December 2, 1955, the Justice Department filed a complaint charging that the Swiss watchmaking machinery manufacturers (Machor, S. A.) refused to sell or lease watchmaking machinery to purchasers or lessees except on condition that the machinery would be used only in nonhorological production. Provisions were made for the policing of these conditions by permitting the Swiss seller or lessor to inspect the use to which this machinery was put in the plants of the United States manufacturers. Sanctions were provided for violations of the sales or lease agreements.²¹

2. So much for the Swiss strategy in regard to the limitation which it imposes on horological production outside of Switzerland. We turn now to the question of Swiss strategy in regard to foreign competition—especially United States competition—emanating from firms which do not trade in Swiss horological products. And since we are here in an area which is obviously beyond direct control of the Swiss cartel, Swiss strategy in the economic sphere turns on price and quality competition.

(a) In particular, and in the context of strategy, there arises the question: Does the cartel practice price discrimination? Is there evidence that countries which do not have competing horological industries, or whose demand conditions display certain peculiarities, are discriminated against as regards price? The evidence is largely lacking since the official Swiss statistics and other public records of Swiss export activities lump together large varieties of watches and movements under single headings. As a result it is impossible to derive unequivocal evidence of price discrimination. Discrepancies in the average prices of the various statistical categories under which watches and movements

²⁰ A. H. Stuart, *Swiss Watch Industry's Drive Raises Interest, Poses Questions*, *Foreign Commerce Weekly* (Aug. 29, 1949), 39-40.

²¹ Complaint, *United States v. F. H. et al.*, Civil Action No. 105-210 (S. D., N. Y.).

are classified may reflect nothing but the changed composition of that category as well as differences in transport cost. In short, the statistics are not clear on this point.

There is, however, one instance in which price discrimination appears to have taken place—that involving automatic watches, a quality product whose subtypes are quite homogeneous. In this case an average price (total imported value divided by the number of pieces) has specific meaning. The following table²² indicates average 1952 prices in Swiss francs, exclusive of import duty and transportation costs:

Country	Average price	Percent of United States prices
United States.....	23.38	100
Mexico.....	47.47	200
Venezuela.....	40.41	172
China.....	58.80	251
Turkey.....	42.08	180
Italy.....	90.22	385

In this particular instance price discrimination against countries which do not have watch industries appears to have taken place.

(b) Needless to say, modern merchandising techniques have taken market competition far beyond simple price comparisons. With the introduction of brand-name and institutional advertising, simple price competition has been circumvented to a degree by establishing a belief in the special quality of the products so advertised. In short, every successful campaign to establish or maintain a brand-name or manufacturing origin as a mark of special quality creates a degree of monopoly power. Hence the very presence of institutional advertising, for example, has been taken by economists as evidence of monopoly power.

It is significant in this context that in 1947 F. H. instituted a worldwide publicity program for the Swiss watch industry. The program, financed by a levy of 50 centimes on each lever-escapement movement manufactured or assembled in Switzerland, succeeded in raising an annual budget in excess of \$2 million. The publicity campaign was started in the United States in 1948 on a substantial scale, and is being continued with great success under the direction of a prominent New York advertising firm.²³

(c) The arsenal of stratagems open to the monopolistic competitor contains other weapons, among which are those of price manipulations and product changes. Of course, these can be used for defense as well as for aggression in the oligopolistic struggle for markets. The present subsection 3 (c) deals with a case of simple price manipulation.

The point to be made in this connection, as indeed in reference to all the instances of strategy examined so far, is simply this: From the economist's standpoint the very existence of price policies leading to so-called administered prices is always proof of some degree of monopoly power. Thus, when price administration policies are carried out by an industry as a whole or by an entire subdivision of an organized industry, there can be no question about the presence of monopolistic price manipulation.

As the subsequent statistical study shows, the Swiss watch cartel, acting through F. H., countered the increase in the United States tariff of July 1954 with precisely such a change in its price policy. In November of 1954, new barrage prices were announced, to become effective January 1, 1955, which covered an extensive range of movement sizes and types. The effect of these reductions was to offset roughly one-half of the tariff increase of 1954.

(d) The other instrument of monopolistic strategy employed by the Swiss, and the last one to be discussed in the present section, comes under the general head of product variation. This type of action, too, was brought into play as a countermove against the American tariff increase of 1954. Rescinding a prohibition of 20 years standing which goes back to F. H.'s early fight against "chablonnage,"²⁴ the cartel permitted the export of watches to the United States

²² Cf. statement of Arthur B. Sinkler, president of the American Watch Manufacturers Association, before the Permanent Subcommittee on Investigations, Committee on Government Operations, U. S. Senate (1955), exhibit C, p. 10.

²³ Foote, Cone & Belding, New York.

²⁴ "Chablonnage" refers to the export of partially or completely unassembled watches for the purpose of selling at a lower price.

which had been especially prepared for "upjeweling." The purpose of this stratagem appears to have been to circumvent the \$10.75 duty which applies to movements containing more than 17 jewels at the time of importation. The watches in question were so designed as to permit their "upjeweling" by the simple insertion of jewels, or in other cases, the addition of a winding mechanism containing jewels.

Unlike the reduction of barrage prices mentioned under (c) above, "upjeweling" appears to possess an aspect of aggression. For the market in high-jewel count watches has heretofore been largely the preserve of American watch manufacturers. "Upjeweling" may well be an attempt to make inroads into this sector of the market.

THE TARIFF INCREASE AND EFFECTS IN THE AMERICAN JEWELLED WATCH INDUSTRY

FALLING PRODUCTION IN THE UNITED STATES JEWELLED WATCH INDUSTRY

During the 1951-54 period, United States production of watches fell. Importation of watches reached the highest point in 1953, as shown in table I and the chart on the following page.

The domestic jeweled watch industry's inability to expand its share of the United States market has had a significant effect on its employment of workers in watch production.²⁵

Number of employees on watch production

Period:	Period—continued	
Average 1946-50-----	9,318	1953----- 5,600
1951-----	8,000	1954----- 4,752
1952-----	6,400	1955----- 4,437

The 1954 tariff increase on watch movements with 17 jewels or less served to check the rate of decline in domestic production of 17 jewel movements. Only in the over-17-jewel category (protected by a \$10.75 duty) was the domestic industry able to show an increase in production.

THE TARIFF INCREASE AND ITS LIMITED BENEFIT TO THE UNITED STATES JEWELLED WATCH INDUSTRY

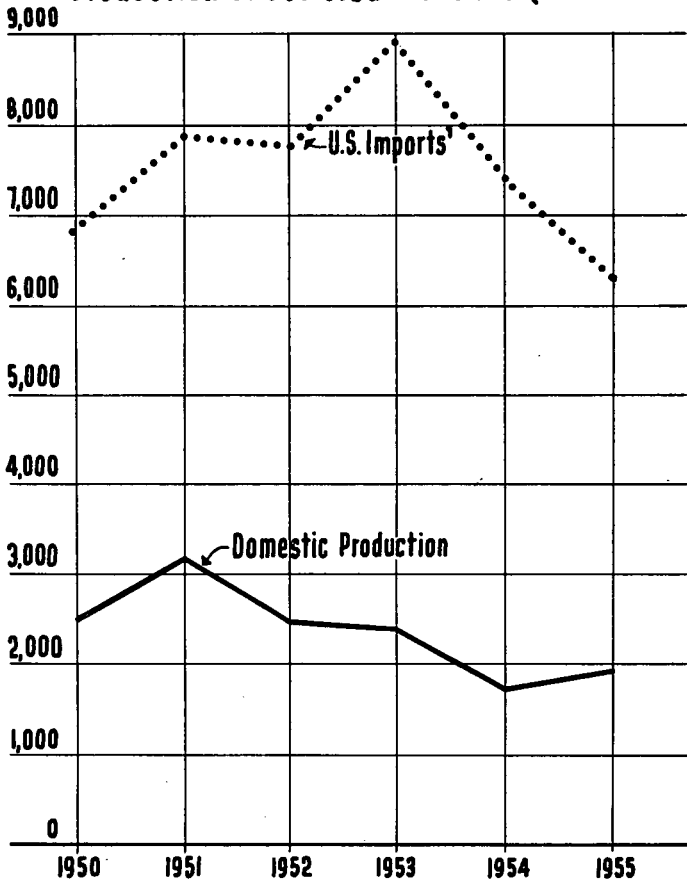
Tariffs were increased on watch movements and became fully effective in August 1954. It has been estimated that on the average the tariff increase amounted to \$1 per watch. In November 1954 the Swiss cartel announced a new barrage price list which according to the trade information gave an estimated weighted average reduction of between 45 and 50 cents per movement. Indices of import cost prices to the American importer are shown in table III. In addition to published reduction in minimum prices, further reductions were made through so-called under the table discounts, which, according to trade information, reached substantial proportions.

In 1955 it became necessary for the domestic industry to grant a wage increase in order that the domestic companies might remain marginally competitive for their labor in the areas in which their plants are located. This increase, averaging 4 percent, compares with a national average of about 6 percent.²⁶ The increase represents approximately 50 to 55 cents added cost per watch movement. The benefit of the \$1 tariff increase was eliminated by the price reduction made by the Swiss cartel and the wage increases granted by the domestic industry. A small increase in consumer demand has been accompanied by a small increase in domestic production of watches while inventories have continued abnormally high.

²⁵ Recent data gathered by the American Watch Manufacturers Association, Inc.

²⁶ Communication from American Watch Manufacturers Association, Inc.

CHART 1 United States Imports and Domestic Production of Jeweled Watches (000 of watches)



¹ Excludes estimated watch movements used in clocks

Source: Import data, Bureau of Census, Report FT 110, revised to eliminate movements estimated to be small clocks.

Domestic production, American Watch Manufacturers Association.

TABLE III.—Quantity indexes of watch movement cost prices to American importers

[1952=100]

	0 to 1 jewel	2 to 7 jewels	8 to 15 jewels	16 to 17 jewels ¹	Average price change, all groups
	Percent	Percent	Percent	Percent	
1948.....	104.4	107.2	86.1	99.4	98.2
1949.....	91.5	103.6	83.6	94.0	92.7
1950.....	90.4	100.8	87.0	90.4	90.0
1951.....	94.2	95.7	86.9	93.1	90.2
1952.....	100.0	100.0	100.0	100.0	100.0
1953.....	106.1	98.4	96.6	99.7	96.1
1954.....	111.3	92.3	93.8	106.1	97.8
1955.....	105.6	91.8	103.2	106.0	96.9

¹ The tariff on watches of more than 17 jewels is \$10.75 each and is so high as to virtually exclude United States importations. Peak imports in 1953 were only 9,617 units and was only 1/10 of 1 percent of total imports of all watch movements.

Source: Index numbers computed from Commerce Department reports, Department of Commerce Bureau of Census, F. T. No. 110, United States Imports of Merchandise for Consumption.

JEWELLED WATCH PRICES IN THE UNITED STATES

There is some evidence that the retail prices of watches in the United States, especially in the lower price range, were revised upward following the increase in the tariff. This conclusion is based upon an unweighted comparison of some watch prices in 1954 and 1955 as charged by one large watch company. The following results were found in this survey:

Model	January 1954	Spring, 1955	Model	January 1954	Spring, 1955
Ladies' watches:			Men's watches:		
1.....	35.75	35.75	1.....	39.75	42.50
2.....	37.50	39.75	2.....	42.50	45.00
3.....	42.50	45.00	3.....	45.00	49.50
4.....	45.00	49.50	4.....	45.00	49.50
5.....	49.50	49.50	5.....	55.00	57.50
6.....	49.50	49.50	6.....	57.50	59.50
7.....	49.50	49.50	7.....	67.50	67.50
8.....	49.50	55.00	8.....	69.50	69.50
9.....	57.50	59.50	9.....	71.50	75.00
10.....	71.50	71.50	10.....	85.00	85.00
11.....	71.50	71.50	11.....	95.00	95.00
12.....	89.50	89.50	12.....	125.00	135.00
			13.....	125.00	135.00
			14.....	175.00	175.00

This increase in prices which occurred following the increase of the tariff is also timed with the turn of the United States economy from a condition of moderate unemployment to high-level employment conditions.

National income in the United States changed since World War II as follows in billions of dollars:²⁷

Year	Total national income	Change in national income	Consumer Price Index, 1947-49=100	Year	Total national income	Change in national income	Consumer Price Index, 1947-49=100
1945.....	181.2		76.9	1951.....	277.0	+34.0	111.0
1946.....	179.6	-1.6	83.4	1952.....	289.5	+12.5	113.5
1947.....	197.2	+17.6	95.5	1953.....	303.6	+14.1	114.4
1948.....	221.6	+24.4	102.8	1954.....	299.7	-3.9	114.8
1949.....	216.2	-5.4	101.8	1955.....	322.2	+22.5	114.5
1950.....	240.0	+23.8	102.8				

The consumer price level was quite stable from 1952 through 1955. National income, however, in 1954 fell below the 1953 level. National income in 1955 was

²⁷ Economic Report of the President, January 1956.

\$22.5 billion above that in 1954. Since the price level fell slightly from 1954 to 1955, the increase in national income was real and the price increases by the mentioned watch company were also real. This price increase was offset according to trade information by the wage increase. A significant effect of the tariff increase has been to improve the position of the watch industry in the competitive labor market.

THE PROFIT POSITION OF THE UNITED STATES JEWELED WATCH INDUSTRY

The sales and profit rates of the watch industry, instruments and related products and all manufacturing are given in table V below.

TABLE V.—*Ratios of profits after taxes to net worth and net sales, domestic jeweled watch industry compared with all manufacturing industries and the instruments and related products groups*

Year	Ratio of profits to net worth			Ratio of profits to net sales		
	Domestic jeweled watch industry	Instruments and related products	All manufacturing industries	Domestic jeweled watch industry	Instruments and related products	All manufacturing industries
1946.....	9.5	14.8	10.3	6.1	8.5	5.3
1947.....	13.3	16.9	13.4	7.3	8.6	5.9
1948.....	13.0	17.2	13.3	6.7	8.9	5.9
1949.....	9.1	13.1	9.8	6.1	8.3	4.9
1950.....	10.2	15.9	13.4	6.6	9.4	6.2
1951.....	7.9	12.5	11.8	4.6	6.1	4.8
1952.....	7.1	11.5	10.2	3.6	4.8	4.3
1953.....	6.3	11.0	10.4	3.9	4.6	4.3
1954.....	7.8	12.0	9.8	3.4	5.5	4.5
1955.....	7.7	12.2	12.2	3.6	5.9	5.4

Source: Years 1946-52, U. S. Tariff Commission, Report on Escape Clause Investigation No. 26, table 17; 1953-55, Domestic Watch Industry, Annual Reports of the Companies, and Company Data; on Manufacturing Industry and Instruments and Related Products Group, FTC-SEC Quarterly Financial Reports.

No watch company has a profit rate equal to the average for instruments and related products in the United States. The Hamilton Co. is almost average. Bulova is moderately below average, while Elgin and Waltham are significantly below average. The profit position of 3 out of the 4 watch producing firms improved from 1954 to 1955.²⁸ This might be expected on the basis of the increased consumer purchasing power. The tariff relief, while permitting wage increases, appears transitory as far as profits were concerned.

The domestic producers of watches have carried an appreciable part of the overhead represented by idle watch capacity through the production of defense items.

A critical situation develops as soon as defense production falls and fixed costs can only be spread over domestic production, unless domestic production can be increased to the break-even point. Defense item production by the jeweled watch industry fell from 1954 to 1955.

*Value of domestic jeweled watch industry's deliveries under Government contracts*¹

1953.....	\$49,771,000
1954.....	65,529,000
1955 ²	56,995,000
1956 ³	31,761,000

¹ Communication from the American Watch Manufacturers Association, Inc.

² 11 months actual, 1 month estimated.

³ Partially estimated, Jan. 1 order backlog.

If the capacity of watch production in the United States firms does not permit a break-even point in jeweled watch production, the alternative would be to turn to some other domestic product.

²⁸ Data obtained from the American Watch Manufacturers Association, Inc.

This alternative, even though it were to permit the full utilization of the present production facilities and technologies, would leave the American consumer at the discretion of a giant cartel organization. It is unlikely that skills and technology of the American jeweled watch industry could be kept intact through the production of other consumer products.

THE SWISS WATCH INDUSTRY AND THE TARIFF²⁹

Table 6 of the appendix shows that the world watch production outside of the Russian sphere is dominated by Switzerland and the United States. In 1954 the United States and Switzerland produced roughly 90 percent of the watches outside of the Soviet-dominated area. Of these, Switzerland produced a little over 70 percent as shown in that table. The Swiss watch industry experienced a cut in watch exports to the United States between 1953 and 1954. This cut-back in exports has not been associated with the increase in the tariff, as the tariff effects had not yet been felt, but rather with the general depressed economic conditions in the United States.

In a report prepared by the Federation Suisse des Associations de Fabricants, the economic prosperity and the effects of the United States tariff increase on the Swiss watch industry has been described in the following way:

"The year 1954 seemed when it came in to be heavy with threats to the Swiss watch industry, but as it draws to a close we find to our satisfaction that these fears were to some extent unjustified. It is true that there has been some falling off in trade, but nevertheless 1954 will go down in history as one of the three best financial years the Swiss watch industry has ever known. As the prosperity of the retail trade is on a par with that of the manufacturing side, we can all step forward cheerfully into the new year. The results achieved in 1954 did not come without effort. Even in the first few months of the year there was already a marked drop in business with North America. This slackening off affected Mexico and Canada as well as the United States, and was therefore due to factors influencing the economy of half a continent. The raising of the customs duties by President Eisenhower did not come until later, and its full effects have not yet made themselves felt. At the time when the head of the great republic increased import duties, the wholesalers on the other side of the Atlantic had considerable stocks in hand, and were therefore able to go on selling at the old prices for 6 months or more. It was not until the middle of November that the first wholesalers in the States brought their prices into line with the new duties. This means that the significance of the decision of July 27 will not be fully brought home to the Swiss watch industry until the spring of 1955. If a falling off due to the raising of the customs duties becomes apparent, in addition to the natural slackening of the market in North American, Switzerland will be seriously affected."³⁰

Swiss watch exports increased from 1,040 million francs in 1954 to 1,077 millions of francs in 1955 as shown in table 4 of the appendix. This increase in the export of watch movements is accompanied by a fall in exports to the United States. This is not what one would expect on the basis of the shift of the United States economy, from a moderate recession to full-employment condition, if one were to disregard the tariff effects. The failure of the United States imports to show a net increase in 1955 can be explained, at least in part, by the need for liquidation of large inventories.

The Swiss economy does not appear to have had a recession in the 1953-54 period as did the United States. Total exports of the Swiss economy increased from 5,165 million francs in 1953, to 5,272 million francs in 1954, and to 5,622 million francs in 1955. Table 1 of the appendix shows a continuous increase in industrial employment, retail sales, national income, and electric power consumption since 1952. The number of unemployed continued to fall up through 1955.

The appendix to this paper gives ample evidence that the Swiss economy has continued in a moderate boom condition up through the first quarter of 1956. Industrial production has increased in most sectors and the total value of visible foreign trade during the first quarter of 1956 was well above that for the corresponding period of 1955.

²⁹ A comprehensive and documented paper which deals with the Swiss watch industry and the Swiss economy has been prepared by Sidney G. Tickton, and appears as an appendix to this paper.

³⁰ Federation Suisse des Associations de Fabricants D'Horlogerie, supplement of the Journal Suisse D'Horlogerie et De Bijouterie No. 11-12, 1954, p. 2.

The Swiss watch industry is still booming. Exports in the first quarter of 1956 were about 15 percent above those of the similar period of 1955. Commoditywise, almost all industries shared in the increase of exports. The major portion of the rise in exports to the United States was accounted for by exports of the watch industry.

The Swiss watch industry appears to have adjusted to the United States tariff increase rather quickly. Increased United States imports of Swiss 2-jeweled and over watch movements²¹ during the first quarter of 1956 were:

[In numbers of movements]

Month	1955	1956	Percent Increase 1956 over 1955
	<i>Thousands</i>	<i>Thousands</i>	
January.....	284	331	16
February.....	433	434	—
March.....	399	549	37
Total 1st quarter.....	1,116	1,314	17

Source: Department of Commerce.

The evidence detailed in the appendix together with the trend evidenced in the above table indicate strongly both that the Swiss watch industry adjusted quickly to the tariff increase, and that no significant damage to that industry or to the Swiss economy occurred as a result of the increased duties.

DEFENSE ESSENTIALITY AND THE DEVELOPMENTAL TARIFF AS APPLIED TO THE WATCH INDUSTRY

RÉSUMÉ AND CONCLUSIONS

1. *Meaning of essentiality and definition of developmental tariff*

Considering the theoretical aspects of the term "essentiality," the following propositions were reached:

"Technological essentiality is the dependence of the attainment of a given technological aim on a specific skill or the result of such a skill. The skill of watchmakers and the organization holding them together has been declared to be essential to defense in this sense."

The use of this criterion of essentiality as basis for granting protection against a superior foreign competitor often conflicts with the demands of our foreign economic policy, aiming at liberalizing trade. This policy rightly takes the division of labor based on competitive costs as the most advantageous arrangement of industry for all concerned.

The conflict between technological essentiality and demands of liberalizing world trade can be reduced. For this purpose, it is necessary to recognize that internationally competitors frequently have unequal power. Compensation of such economic power provides a framework within which productive capacity can develop better and more in accord with the principle of competitive cost than under circumstances in which potential competition and development is prevented or reduced by power inequality, arising from innovation or organization.

Domestically, Congress, the courts, and Governmental agencies assist either in the dissolution of such power or in the formation of compensating power whenever spontaneous private activity is failing to provide it. Internationally, such agencies are absent. Their place is taken by negotiated tariffs, quotas, subsidies, and similar measures, or by administrative decisions within the limits of international agreement.

A tariff, compensating for power inequality has been called in this paper a developmental tariff. If the power of the foreign competitor is properly evaluated in the case of an industry declared technologically essential and applying for tariff support, the application of such support to remove this excess, the other criteria being met, will increase productive power not only domestically

²¹ Excluding those estimated to be small clocks.

but also internationally. The conflict between defense requirements and foreign economic policy will have been removed.

From the point of view of defense planning, technological essentiality is ultimately decisive by the requirement of self-preservation. Thus, if a domestic industry can be shown to be technologically essential for defense, but should be unprogressive, this domestic industry would have to be supported by tariff or otherwise, even though it would be cheaper to buy abroad. This loss in the increase of total capacity to produce is the cost of defense.

The tests of eligibility for a developmental tariff are:

- (1) Evidence of monopoly power of the foreign competitor.
- (2) Evidence of the capacity of the domestic industry to develop and innovate.
- (3) Evidence that the domestic industry is on or near the product changing margin.
- (4) Evidence that the foreign competitor, in case a tariff increase will be granted, will not be injured in his capacity to produce and develop but only divested of his monopoly power.
- (5) Evidence that the granting of the tariff increase will not result in price and cost changes at home so great that a resulting disturbance will reduce national capacity to produce.

2. *Is the American watch industry eligible for developmental tariff increase?*

The tests can be applied by examining the effects of the President's tariff increase in 1954. They may be divided into two parts:

- (1) The classical competitive effects, resulting from the fact that in the short run capacity remains unchanged.
- (2) The developmental effects, resulting from the emergence of the compensating power of the rate increase of 1954.

The classical effects: Competitively, an increase of a rate of duty leads to a rise in the price paid by the consumer, a fall in landed price, a fall of imports, and an increase in domestic production or sales from domestic inventories. There is some evidence that these expected effects actually occurred. From scattered retail price data, it appears that prices of lower priced watches did increase by roughly \$2 in many cases from 1954 to 1955. No such price changes seem to have taken place in high priced watches. The general trade impression is that the tariff increase was on the average \$1 per watch.

A landed price index, weighted by 1952 imported quantities and based on 1952 prices, fell from 97.8 in 1954 to 96.9 in 1955.

Imports were reduced from 7.4 million movements in 1954 to 6.5 million in 1955.

There is some evidence of increased output which, however, proved unprofitable. Increased sales came from inventory.

The cyclical movement in the United States at that time was upward. United States national income in real dollars between 1954 and 1955 rose by \$22.5 billion. The consumer price index remained practically constant. In 1954 it stood at 114.8 and in 1955 at 114.5. This increase in national income, without tariff changes, should have led to increased imports. The constant consumer price level should have gone in this case with unchanging retail watch prices and unchanging landed prices. The actual events were different and in agreement with theoretical expectations. Therefore, from the cyclical point of view, it is not necessary to revise our judgment that the increased duty rate was the reason for a possible retail price rise, a fall of landed prices, a decrease of imports and an increase of sales from inventory.

The developmental effects of the 1954 tariff increase:

The conclusions given below, gathered from the considerations in the text, indicate that the American watch industry fulfilled the requirements set up for eligibility for a developmental tariff.

(A) The Swiss watch industry exhibits the signs of possessing restraining or monopoly power.

(a) There is syndical reciprocity, which closes the channels of trade to outsiders.

(b) There is fixing of barrage and parts prices.

(c) There are export limitations on skills and provisions to discourage growth and development of a watch industry in other parts of the world.

(d) There is a power of maneuver abroad, including punishment of violators of agreements.

(e) Barrage prices after the tariff increase of 1954 moved together. New barrage prices became effective January 1, 1955.

This evidence permits the conclusion that the Swiss watch industry has exercised a restraining power which needs to be compensated.

(B) The American watch industry shows capacity of innovating and developing. It introduced the assembly line, engaged in extensive research for the development of defense material and is now developing an electronic watch as well as electronic testing devices and other innovations. On this score the American industry had been granted a development tariff according to our criteria.

(C) There was no apparent damage to the Swiss watch industry following from the United States tariff increase. By their own testimony, 1954 was one of the best years of the industry, perhaps not yet showing the effects of the tariff increase. The years 1955 and 1956 to date, however, proved to be very good years for the Swiss watch industry which expanded its production as well as for the Swiss economy as a whole.

Any damage to the Swiss watch industry would have been very serious to the Swiss economy as a whole, because this industry is one of the important earners of foreign exchange. No such damage, however, appeared and the United States tariff increase on this count was therefore compensating rather than restraining.

(D) The American watch industry is only a small part of the United States economy. Therefore, changes in the former, under any condition, will not be very significant to the latter.

(E) The American watch industry is close to the product changing margin. One of the four companies has been in grave financial difficulty; the others are earning less than normal profits, including return from defense contracts. The number and importance of these contracts appears to be declining. A declining employment trend in this industry also points to the conclusion that the industry is near the product changing margin.

These facts, taken together, support the conclusion that the industry was eligible for a developmental tariff increase.

The developmental effects of the tariff in the short run should be the financial strengthening of the domestic industry and improvement of its position in the competitive labor market, labor being the most important of its inputs. In the long run, these effects should be, as indicated earlier, the increased emphasis on research, increase in productive power by improving technologies and introducing innovations, without damage to the Swiss capacity to develop without exercise of power, so that the increase in capacity to produce is net.

In the short run, the United States watch industry was capable of granting wage increases to the extent of \$0.50 per watch on the average. It so improved its competitive position in the labor market even though not reaching the national wage increase for this period.

Under competitive conditions, the fall of landed prices should have been accompanied by the elimination of marginal producers in the exporting country, and by financial difficulties of that industry in general. Furthermore, the fall of landed prices would have been irregular under these conditions.

Instead, barrage prices moved promptly and together (January 1, 1955); neither is there any indication of financial difficulties of the Swiss industry nor of a reduction of the number of producers. It is true that new markets compensated for the reduction of the American market, explaining in part the lack of adjustment difficulties. However, the turning to other opportunity is the very sign of competition, for which the compensating power of the American tariff was at least in part responsible.

As a countermove to the United States tariff increase, the Swiss shifted increasingly into the export to this country of underjeweled movements to be finished here by less skilled labor. This substitution of exportation of incompleting movements for the exportation of the finished product was precisely the move whose prevention played so large a part in the formation of the Swiss watch cartel. Chablonnage or exportation of parts to be finished outside of Switzerland was an important device employed by manufacturers who were not members of the agreements, designed to organize Swiss national watch production. These dissident manufacturers sold their product below the price level stipulated in the agreements and promoted the export of bridge and plate assemblies and of spare parts which the signers of the agreement had resolved to discontinue.

Super-Holding, in which the Federal Swiss Government is a shareholder, was formed to prevent chablonnage (cf. Feuille Federal, vol. III, Bern, Oct. 12, 1950, pp. 1-57).

The Swiss move against their own dissident manufacturers, practicing chablonnage, was one of compensation for the loss of economic power suffered during the depressions of the 1920's and the great depression. As such, it was

not a measure designed to establish a monopoly. In fact, the many desperate measures of a similar kind which governments and industries took in those times were such attempts at compensation.

The present chablonnage by the Swiss watch industry against the United States watch industry also and again calls for the creation of compensating power and might be cited for supporting a request for further developmental tariff support.

DEVELOPMENTAL TARIFFS AND FOREIGN ECONOMIC POLICY

3. *This paper examined the significance of the term essentially as a criterion for granting or denying support against foreign competition*

It recognized that in foreign economic relations inequality of economic power frequently exists, and is likely to increase with the stepping up of the rate of innovation. Foreign commerce will move toward the desired aim of our foreign economic policy, liberalizing world trade, if this inequality is redressed. There are no international agencies to provide such compensation similar to domestic agencies and therefore developmental tariffs, quotas, subsidies, and other measures must be used for this purpose. They actually have been so used throughout the history of modern industrialism.

This key concept of compensating power has been employed in this paper to show that the conflict between the technological aims of mobilization and the economic aims of our foreign economic policy can be reduced by application of developmental tariffs. An industry, essential for defense, eligible for such tariff and developing accordingly contributes not only to our preparedness but also helps in the strengthening of competition in international economic relations.

TECHNICAL MEMORANDUM ON THE SWISS ECONOMY AND WATCH PRODUCTION IN SWITZERLAND, GREAT BRITAIN, FRANCE, RUSSIA, AND THE UNITED STATES

Prepared by Sidney G. Tickton, consulting economist, New York, N. Y.

In recent months, economic activity in Switzerland has reached new highs. The boom has been reflected in all leading indicators of business activity, with every economic report on Switzerland commenting on the favorable conditions of the country. For example, the Swiss Credit Bank in its annual report covering 1955¹ said:

"Economic activity in Switzerland during 1955 was very brisk, the boom being most clearly reflected in the record turnover in both foreign and retail trade as well as in the scarcity of labor. Although more than 270,000 workers² from neighboring countries had temporarily been engaged, nearly all branches of the economy suffered from an acute shortage of workers, especially of skilled labor. From the spring onward the number of vacancies greatly exceeded that of persons seeking jobs, while both total industrial employment, which averaged 4 percent higher than in the previous year, and overtime worked in factories reached a new record in 1955." [Italic supplied.]

For the year as a whole national income reached a new peak, rising to a level of not less than 23½ billion francs. (See chart I and table 1 in the appendix.) Said the Swiss Bank Corporation in its February 1956 report:³

"Since 1945, the Swiss national income has increased by about 6 to 7 percent every year. For 1954, it was nominally 153 percent and in purchasing power 48 percent above 1938 levels. During the same period, personal income at the disposal of private individuals rose by 99 percent and 16 percent, respectively. This achievement, if we except the countries devastated during the war, was only surpassed (and by a small margin at that) in the United States, Canada, and Sweden." [Italic supplied.]

The boom was also reflected in the volume of building activity, electric power consumption, railway traffic, hotel trade, and retail trade. The Swiss Credit Bank commented on retail trade in 1955 in its March 1956 report⁴ as follows:

¹ Review of Economic Conditions in Switzerland During 1955, Swiss Credit Bank, Zurich, March 1956, p. 1.

² 270,000 foreign workers in Switzerland would be equivalent to 8,100,000 foreign workers in the United States where the labor force is 30 times as large.

³ Prospects, Business News Survey, Swiss Bank Corp., Basle, February 1956, p. 3.

⁴ Review of Economic Conditions in Switzerland During 1955, Swiss Credit Bank, Zurich, March 1956, p. 11.

"Retail turnover expanded during 1955 more than in the previous year. With prices steady the increase was nearly 6 percent, or even greater than during the post-Korean buying spree of 1951, when prices rose considerably. *No doubt the growth of sales, which became more rapid in the second half-year, mainly reflects the high level of employment and the widening number of customers due to the greater influx of foreign visitors and workers.*

"The largest rise in sales occurred in capital goods and durable consumers goods such as furniture, automobiles, office machinery and typewriters, hardware and ironmongery. These are precisely the articles that are very frequently bought not out of current income but out of accumulated savings, or even on the installment plan. All the signs in fact indicate that buying on credit has further expanded.

"In clothing and textiles, where greater interest was shown in carpets, bedding, and blankets in particular, the increase in turnover amounted to about 5 percent, while sales of foodstuffs, beverages, and tobacco were some 4 percent greater than in the previous year, with prices on the average up by about 1 percent.

"Although some smaller firms still complain that their stocks of goods are too large, the ratio of total inventories to turnover at the close of 1955 would seem to have been lower than a year before. *Since it appears safe to rely on a continuation of the high level of economic activity, retailers expect a further rise in business for at least the first half of 1956.*" [Italic supplied.]

In its April 1956 report the Swiss Bank Corp. again emphasized the favorable conditions of the country, this time by quoting from the seventh report⁵ of the Organization for European Economic Cooperation as follows:

"* * * *The Swiss economy is still showing a steady and generally well-balanced expansion.* The growth of production is sustained by the high level of foreign trade * * * and has also received new impetus from a recovery of private industrial investment. * * * Full employment of resources is at present assured; * * * there is still an appreciable shortage of labor in certain sectors. So far, excessive internal demand has been avoided by restraint in the increase in personal incomes and the restriction of public investment. * * * Financial policy has aimed at reducing the excessive liquid assets of the banks and the private sector. * * * *The economic situation remains basically sound, and there seems to be no need, at present, for new restrictive measures.*" [Italic supplied.]

Three weeks ago (on May 14, 1956) a Foreign Service Dispatch⁶ to the United States Department of State from Bern, Switzerland, brought the details of Swiss economic activity up to date. In part, the dispatch said that:

"*The moderate boom conditions of 1955 and early 1956 extended into February and March* despite some limitations on building, electric power, freight transport and retail trade caused by the European cold wave in February. Industrial production is reported to have increased in most sectors and has shared favorably in a 10.6 percent rise in first quarter exports over the first quarter of last year. Wage and price levels have increased only slightly, and unemployment, up temporarily in February, was at a low again by the end of March." [Italic supplied.]

The dispatch went on to say:

"The metal and machine industry continued to be fully occupied, with an increase in order backlogs and a further lengthening of delivery periods taking place despite increased production and a certain slowing in the influx of new orders. Some quarters stated that rising costs of certain primary materials in the machine industry might require an upward adjustment in machine sales prices. *The watch industry, in turn, is still booming, with exports in the first quarter valued at 248 million francs or about 15 percent above the similar period last year.* [Italic supplied.]

"Production in other industries, including textiles and clothing, is also reported to have increased. The cotton industry, which had begun the year somewhat pessimistically after suffering a setback in 1955, showed an increase in new orders received by the end of March, although most of these were said to involve short-term contracts at depressed prices. The silk ribbon industry reported a 6.5 percent decrease in exports for the first quarter as compared with the same period last year, but this was not unexpected owing to the building up of inventories by purchasers during the latter half of 1955. A somewhat livelier receipt of new

⁵ Economic Expansion and Its Problems, Office of European Economic Cooperation, Paris, February 1956.

⁶ Dispatch No. 780, unclassified, entitled "Monthly Economic Summaries, Switzerland, February and March 1956," American Embassy, Bern, May 14, 1956.

orders at the same time has aroused hopes that buyers are planning to keep up their inventories and abandon the demands for short delivery periods which have so plagued this and other branches of the textile industry from time to time."

With respect to Switzerland's foreign trade position the dispatch said:

"The total value of visible foreign trade during the first quarter of 1956 was well above that for the corresponding period last year. Import values experienced a further seasonal decline in February, but still exceeded those for February 1955 by about 20.5 million francs. Exports increased in February and both imports and exports increased in March. The total value of imports for the quarter stood at 1.7 billion Swiss francs at the end of March, an increase of 11.6 percent over the figure for last year's first quarter. The total value of exports increased by 10.6 percent over the level for the first quarter of 1955 and reached 1.4 billion Swiss francs for quarter this year. The quantity of both imports and exports was estimated to have risen by about 7 percent, the terms of trade having been slightly less favorable than they were last year owing to a small rise in the index of import prices and a small decline in the index of export prices. Although the traditional import surplus for the first quarter of 1956 amounts to 240 million francs as compared with a figure of 206 million francs for the same period last year, it represents a smaller proportion of total trade.

Commoditywise, almost all of the main industries shared in the increase of exports, with the metal and machine industry and the watch industry accounting for the larger proportion. Among those items sharing in the import rise were construction materials, certain industrial raw materials such as primary iron and steel products and particularly raw copper, fuel, fruits and vegetables, and automobiles.

"Swiss exports to the United States amounted to 157.2 million francs for the quarter and imports from the United States amounted to 194.6 million francs. This represents an improvement of Switzerland's export position toward the United States, exports having risen about 18.6 million francs over the first quarter of last year while imports declined by about 1.2 million francs. The major portion of the rise in exports to the United States was accounted for by exports of the watch industry, which increased by 13.8 million francs over the value of such exports in the first quarter of 1955. In terms of total trade, the United States continues to rank second (after Germany) as a customer of Switzerland and ranks third (after Germany and France) as a supplier." [Italic supplied.]

The export rise during the first quarter of 1956 was a continuation of the postwar upward trend. Exports in 1955 at 5.6 billion francs were 7 percent above 1954 and 18 percent above 1952. Although exports to the United States were lower in 1954-55 than in the 2 previous years, shipments to European and other countries more than made up the difference. (See chart II and table 4.) As for watches, when measured in terms of the value involved, Swiss exports to all countries in 1955 were within 3 percent of exports in 1953, the all-time peak year. When measured in terms of the number of watches shipped, however, 1955 was the peak year, with more watches exported to all countries in that year than in any other previous calendar year.⁷ (See charts II and III and tables 5 and 6.) Thus, despite earlier predictions to the contrary and a slow start, 1955 worked out well for the watch industry. A Foreign Service dispatch⁸ from Bern dated January 3, 1956, points out:

"In its end-of-the-year editorial La Suissehorloger, official organ of the Swiss Watch Chamber, reached the conclusion that 1955, 'all things considered, has been good. The negative elements of the picture are, in spite of everything, sufficiently secondary.'

"The editorial took note of the complaints made by manufacturers that internal competition among Swiss concerns is more intense; that foreign competition is increasingly sharp; that prices ought to be higher; that labor demands are excessive; that the shortage of labor is such that it is necessary to employ foreign workers; and that the associations have taken measures they ought not to have taken and failed to take a number of steps which they should have taken.

"At the same time, the watch industry publication observed that four elements of the picture are worthy of reflection:

⁷ Although the Swiss do not report data on watch production, the export data are regarded as being a comprehensive indication of production trends. The Swiss Bank Corp., in its April 1956 report entitled "Prospects," indicates that 95 percent of the output of the Swiss watch industry is exported. In trade circles it is understood that this high percentage has existed throughout the postwar period.

⁸ Dispatch No. 449, unclassified, entitled "Swiss Watch Industry Journal Concludes 1955 Was Good Year," American Embassy, Bern, January 3, 1956.

"1. Global exports have not been inferior to those of preceding years.

"2. The extent of employment has improved throughout the year, complete and partial unemployment having practically fallen to zero in the course of recent months.

"3. In the field of payments, there have not been any structural modifications increasing the risks inherent in all exportation.

"4. A backlog of orders exists at all levels of production which, without being comparable in volume to certain earlier periods, still permits an optimistic forecast for the months just ahead."

The high level of watch exports and production in Switzerland in recent years occurred at a time when domestic watch production was reaching new peak levels in Great Britain, France, and Russia. (See chart III and table 6.) These countries revived their domestic watch industry after World War II as a matter of governmental defense policy. In Great Britain production approached 3½ million watches in 1955, as the revived watchmaking industry continued to increase output. A few months ago, the *London Economist*'s summarized the picture as follows in describing a large watch and clock exhibition:

"Although the exhibition that clock and watchmakers held at the Goldsmith's Hall last month bore the title, 'Five Centuries of British Timekeeping,' exhibitors were more concerned to render an interim account of *what they had done with the substantial measure of Government aid and protection granted 10 years ago for the resuscitation of their twin industries*. The direct aid consisted of £1 million spent to build factories and buy special plant to be rented to the watchmakers, and to found a horological college to train technicians for both industries. The existing duty of 33½ percent on watches was reinforced by tight quotas on imports; and the 20-percent duty on clocks raised to 33½ percent (25 percent on alarm clocks) with quotas for all except electric clocks.

"*Reckoned by mere output alone, the account the watch and clockmakers had to give of themselves was a fair one*. Watch production, virtually extinct in the 'thirties, totaled just short of 3 million complete pieces last year, and should approach 3½ million this year. Clock output, meanwhile, has grown since 1946 from under 2 million to 5½ million. Together, if timing recorders and switches of various kinds are counted, the two industries achieved a turnover of more than £10 million in 1954. With distributors' margins and purchase tax added, this represented home retail sales of perhaps £23 million, as against the retail value of £9 million for watches allowed in from abroad. These are impressive figures, but they do not yet mean that the industry would remain viable without such protection. *It will take more than 10 years to regain the lead that Swiss and German firms seized 50 years ago*.

"The decline of Britain's former horological prowess came from a reluctance to accept the machine methods that led to the production of interchangeable and high precision parts in Switzerland and the United States from 1870 onwards. By the twenties the domestic watch industry was almost extinct, despite a tariff of 33½ percent introduced by McKenna; and Robert Harwood was compelled to take his plans for the self-winding watch to Switzerland. Watch imports exceeded 7 million in 1938; about a million were assembled here, and some imported movements were put into British-made cases. Clockmaking did not become equally moribund, but it was confined to the medium-priced and costlier grades. When the manufacture of electric timing mechanisms became a commercial proposition late in the twenties, several firms were attracted from outside the mechanical clock field, including S. Smith & Sons. Factories were established to make escapements, wheels, pinions, and certain other parts; workers were trained, at first with Swiss materials; and various firms began to produce or assemble complete clocks. But a few years later the British market was submerged in a flood of cheap clocks from German makers who benefited from various forms of managed currency and a subsidy on exports that reached 45 percent of production costs. Smith's took over several of the dying factories and retained a nucleus of skilled staff making electric clocks. Output totaled 1 million clocks in 1939, but the country was almost wholly dependent upon imports.

"*The reasons for the deliberate revival of these industries in Britain by the Government are openly strategic*. Clock mechanisms are as much at home inside shells and bombs as on mantelpieces; *in wartime there is a premium on labor skilled in high precision instruments, and demand for ordinary clocks and watches goes up*. In the Second World War the British predicament was more

*The Economist, November 19, 1955, London, p. 674.

acute than in the first. After stocks of Swiss timepieces were exhausted, Smith's managed to make more than 100,000 aviation clocks and watches with machinery it had ordered (and was able to ship) from Switzerland before 1940; and before the war ended this firm made pocket, stop, and wrist watches, attaining an output of about 1,000 a week. But sizable shipments still had to be made from the United States, and the Lennox-Byrd committee in 1944 recommended financial assistance to revive the horological industries.

"Four firms now make watches. United Kingdom Time at Dundee—a subsidiary of the United States Time Corp.—made over a million watches in 1954; it has concentrated upon the cheapest ranges of nonjeweled wristwatches from 49s. to £5 15s. 6d. under the trade name Timex. The other three watch firms are British. Smith's, which is the second largest manufacturer, and Ingersoll, which cut its American ties 25 years ago, jointly own the Anglo-Celtic Watch Co. with a factory at Ystradgynlais * * *." [Italic supplied.]

In France, production of jeweled lever watches exceeded 2,800,000 in 1955 (see chart III and table 6), not counting some "ebauches" manufactured by the industry (these are not counted as complete watches). Production was up substantially from previous years, a development which was described by a French publication¹⁰ last year as follows:

"1945-55, 10 years of progress in the French watch industry.—Ten years have already passed since the end of the war and it is interesting to size up the course run in this period by the French watch industry.

"To start with, it is proper to note that the manufacturers have understood the necessity of coordinating their activities, taking their example from the powerful foreign organizations. Thus their efforts led, in 1947, to the creation of the French Chamber of Horology. This in turn gathered together all the professional groups of the watch industry: The subcontractors, the federation of workers' guilds, the association of manufacturers.

"Some changes have taken place since and a new program of reorganization is actually being studied. But since 1945, whether at the echelon of the various organizations or by the French Chamber of Horology itself, the numerous measures have been taken with the view of developing the industry.

"The effort of the manufacturers has brought about, in the first place, an increase in the production, since during the immediate aftermath of the war the shortage was badly felt, as much in the domestic market as in the foreign countries.

"The actual production figures show the progress which has been made, especially if one takes into consideration the percentage of watches manufactured, as time went on, on French ebauches, as compared to Swiss ebauches: In 1938, almost half the watches manufactured in France were assembled with Swiss ebauches, whereas now watches made with French ebauches represent more than 80 percent of the production. This shows how much France has grown independent.

"In 1955, if the actual trend continues, there will be manufactured in France almost 4 million watches,¹¹ whereas in 1938, approximately 2.5 million were made. In the manufacture of lever watches, France has now reached a level which is so to say equal to that of the United States and Germany.

" * * Some changes in the structure of the watch industry must still be undertaken; but the results obtained in the course of these 10 years after the war make for confidence in the vitality and in the future of one of the oldest French industries, which has known—by conforming with Government directives and in the interest of the public Treasury—how to multiply both its potential and its exports, despite the severe handicaps which, on the morrow of the war, might have seemed insurmountable."*

In Russia, production statistics recently released by Nikita Krushchev point to new highs in the manufacture of watches and clocks. Before the 20th Congress of the Communist Party of the Soviet Union in Moscow on February 15, 1956, Krushchev said that Russian production of watch movements and clocks jumped from 7.6 million units in 1950 to 19.7 million in 1955. He said the target for 1960 is 33.6 million units (see chart III and table 6). There is no

¹⁰ Revue Politique Des Idees et Des Institutions, Paris, April 30, 1955.

¹¹ This estimate includes nonjeweled watches and ebauches which are not included in the statistics in chart II and table 4 because of the lack of comparable data for prior years.

way of distinguishing between the number of watch movements and the number of clocks included in the figures used for the Krushchev statement. Krushchev claimed that the Soviet horologic industry turned out 16.8 million timepieces in 1954 of which 5.6 million were made available to the consuming public. What happened to the balance? Frank Kuest, in an article in the Elgin, Ill., Daily Courier-News, February 29, 1956, says the best guess that the experts¹² can come up with is that the remainder was in the form of intricate timing devices for military weapons.

In the United States during the postwar period production of watches went up and then declined (see chart III). Production of pin lever watches reached a high in 1948; the high for jewel lever watches was 1951; the high for imports of watches from Switzerland was reached in 1953. The figures are set forth in table 7.

In 1954-55 production of jewel lever watches was carried on at levels of production about the same as those experienced in 1926-30. Despite a greatly expanded watch market in this country as a result of population increases and postwar prosperity, the domestic jeweled lever watch was a much smaller proportion of the market than heretofore. This is shown by the figures in the table that follows. Further details, source references and data for other years are set forth in the appendix (see table 8).

Watches produced and imported in the United States

Period	Number of watches ¹ produced domestically	Number of watches ¹ imported	Total jeweled watches ¹ produced or imported	Percent produced domestically
Prewar:	<i>Thousands</i>	<i>Thousands</i>	<i>Thousands</i>	
1926-30.....	1,836	2,780	4,616	40
1931-35.....	781	730	1,511	52
1936-40.....	1,678	2,639	4,317	39
Postwar:				
1946-50.....	2,475	7,399	9,874	25
1951-53.....	2,607	8,187	10,794	24
1954-55.....	1,821	6,874	8,695	21

¹ Watch movements with 2 jewels or more only, excluding small clocks.

TABLE 1.—*Highlights of the Swiss economy, 1952-55*

Item	Unit	1952	1953	1954	1955
Industrial employment.....	3d quarter 1949=100.....	110	111	113	118
Number of unemployed.....	Persons.....	5,314	4,995	4,329	2,713
Number of foreign workers temporarily employed.....	.....do.....	200,000	(1)	(1)	270,000
Retail sales.....	1949=100.....	114	117	122	130
National income.....	Million francs.....	20,360	20,970	22,010	23,500
Cost of living.....	August 1939=100.....	171	170	171	173
Electric power consumption.....	Millions of kilowatt hours.....	9,996	10,344	10,941	11,949

¹ Figure shown is for 1951. Data for 1952, 1953, and 1954 on same basis were not quickly available; figures reported on a different basis indicated the trend was steadily upward during these years.

Source: Swiss Federal Statistical Office, Bern, as reprinted in publications of the Swiss Credit Bank Banque Nationale Suisse; and International Monetary Fund.

¹² Reprinted in the Congressional Record, Mar. 21, 1956, p. 4642.

TABLE 2.—National income increase, 1953–55

[Amounts in billions]

Country	Unit of value	Amount			Percent increase
		1953	1955	Increase	
United States.....	Dollars.....	303.6	322.3	18.7	6
Denmark.....	Kroner.....	22.6	24.0	1.4	6
Sweden ¹	do.....	40.0	44.0	4.0	10
Belgium ¹	Francs.....	432.8	479.6	46.8	11
Italy.....	Lire.....	9.2	10.2	1.0	11
Switzerland.....	Francs.....	21.0	23.5	2.5	12
United Kingdom ¹	Pounds.....	14.7	16.6	1.9	13
Norway.....	Kroner.....	17.3	19.8	2.5	14
France.....	Francs.....	10.8	12.4	1.6	15
Netherlands.....	Guilders.....	19.4	22.5	3.1	16
Germany (Federal Republic).....	Deutschemarks.....	103.7	125.0	21.3	21

¹ Data are for gross national product instead of national income.

Source: Data included in reports of United Nations, Statistical Office; Organization for European Economic Cooperation; International Monetary Fund; and various trade organizations; 1955 data are preliminary estimates.

TABLE 3.—Watch exports and national income of Switzerland, 1946–55

[In millions]

Year	Watch exports		National income (francs)	Percent	Year	Watch exports		National income (francs)	Percent
	Number	Amount (francs)				Number	Amount (francs)		
1946.....	21.2	605.2	15,033	4.0	1951.....	36.1	1,010.3	19,500	5.2
1947.....	25.0	768.8	16,842	4.6	1952.....	35.5	1,082.5	20,360	5.3
1948.....	25.1	743.4	17,646	4.2	1953.....	35.4	1,106.7	20,970	5.3
1949.....	24.7	703.2	17,360	4.1	1954.....	33.5	1,039.9	22,010	4.7
1950.....	26.7	730.2	18,160	4.0	1955.....	36.2	1,077.0	23,500	4.6

 Source: Watch exports, *Bulletin Mensuel*, Banque Nationale Suisse, 1946–56; National income, Publications of Statistical Office, United Nations and International Monetary Fund; 1955 data are preliminary estimates.

TABLE 4.—Swiss export picture, 1952–55

[In millions of francs]

Classification	1952	1953	1954	1955
By region:				
United States.....	703	852	641	649
Europe.....	2,773	2,987	3,150	3,367
Other.....	1,273	1,326	1,481	1,606
Total.....	4,749	5,165	5,272	5,622
By commodity class:				
Watches:				
To United States.....	357	403	300	298
To other countries.....	726	704	740	779
Subtotal, watches.....	1,083	1,107	1,040	1,077
Machinery.....	989	1,040	1,099	1,237
Other metal items.....	452	481	506	560
Chemicals and pharmaceuticals.....	506	687	846	870
Textiles.....	631	608	683	729
Other commodities.....	1,098	1,242	1,098	1,149
Total.....	4,749	5,165	5,272	5,622

Source: Bulletin Mensuel, Banque Nationale Suisse; Statistics de Commerce Suisse, United Nations, 1952–56.

TABLE 5.—*Swiss exports, 1952-55, classified by principal commodities*
 [Value in thousands of francs]

Commodity	1952	1953	1954	1955
Watches and machinery:				
Machinery.....	988,980	1,040,049	1,099,137	1,236,592
Watches.....	1,082,542	1,106,662	1,039,915	1,077,000
Subtotal.....	2,071,522	2,146,711	2,139,052	2,313,592
Metal industry, excluding machinery and watches:				
Aluminum.....	68,749	80,623	77,223	75,297
Tools and assemblies.....	311,557	334,439	359,392	398,845
Couplings.....	11,323	7,960	9,124	8,530
Precision tools.....	16,938	17,820	16,099	17,567
Ball bearings, steel.....	12,648	9,117	8,876	10,330
Copper and brass works.....	11,364	11,199	14,996	20,461
Automobile parts, truck chassis.....	13,497	14,886	14,522	21,636
Magnetos, dynamos, starters, bicycle lights.....	6,420	5,525	5,414	7,769
Subtotal.....	452,496	481,069	505,646	560,435
Chemical and pharmaceutical industry:				
Pharmaceutical products.....	292,433	320,563	381,744	404,521
Perfumery.....	29,543	31,970	39,880	44,360
Chemical products for industrial uses.....	94,800	99,596	127,890	151,715
Aniline dyes.....	179,477	234,854	296,187	269,771
Subtotal.....	596,253	686,983	845,701	870,367
Textile industry:				
Sewing cotton.....	70,247	53,928	48,603	55,855
Woven cotton.....	113,405	162,308	172,126	170,853
Embroideries.....	89,738	98,707	112,465	118,490
Hosiery and knitwear.....	35,630	43,174	40,464	40,639
Finished clothing.....	39,989	49,670	54,547	58,704
Silk, wool, and synthetics.....	182,282	200,549	255,014	284,898
Subtotal.....	531,291	608,336	683,219	729,439
Other commodities:				
Straw braid for hats.....	34,563	38,472	35,213	33,389
Shoes.....	27,210	30,021	34,104	37,012
Chocolate.....	20,720	19,327	22,602	24,905
Cheese.....	109,938	101,712	111,593	111,296
Breeding cattle.....	9,253	7,329	9,045	5,862
Raw material for manufacture of paper.....	9,576	12,336	13,829	15,357
Paper and boxes not imprinted.....	8,298	9,315	14,424	14,335
Books, periodicals and newspapers.....	32,333	33,924	37,836	43,193
Hardware and haberdashery.....	9,190	10,228	12,628	13,321
Tobacco products.....	45,563	55,278	53,744	54,902
All other.....	790,726	923,568	752,882	794,799
Grand total.....	4,748,932	5,164,609	5,271,618	5,622,204

Source: Bulletin Mensuel, Banque Nationale Suisse, 1953, 1956.

TABLE 6.—*Watch production, 1948-55*

[In thousands of units]

Country and item	1948	1949	1950	1951	1952	1953	1954	1955
United States:								
Jeweled lever.....	3,018	2,793	2,480	3,162	2,433	2,365	1,716	1,926
Pin lever.....	11,302	6,289	7,265	8,326	6,053	6,031	5,682	6,596
Total.....	14,320	9,082	9,745	11,488	8,486	8,396	7,398	8,522
Great Britain: All watches.....	800	891	1,385	1,717	2,044	2,316	2,931	¹ 3,500
France: Jeweled watches.....	1,707	1,723	2,023	2,611	2,637	2,151	2,458	¹ 2,800
Switzerland: Watches exported.....	25,137	24,697	26,673	36,129	35,495	35,444	33,523	36,172
Russia: Watches and clocks.....			7,600	9,144	9,967	12,160	15,565	19,700
Russia (planned program):								
Wrist watches.....	² 300						5,650	7,150
Other watches and clocks.....	² 3,055						11,150	14,850
Total.....	² 3,355						16,800	¹ 22,000

¹ Preliminary.

² These are the 1941 figures.

The Russian estimate for 1960 is 33,600,000.

TABLE 6.—*Watch production, 1948-55—Continued*

SOURCES OF DATA

(1) United States, 1948-53: Report to the President on Escape-Clause Investigation Under the Provisions of Section 7 of the Trade Agreements Extension Act of 1951, Watches, Movements and Parts, United States Tariff Commission, May 1954, tables 6 and 8; 1954-55: American Watch Manufacturers Association.

(2) Great Britain, 1948-55: Data are for production of all types of watches. They are taken from cable reports from London to a member of the American Watch Manufacturers Association.

(3) France, 1948-55: Data are for production of jeweled watches, excluding "ebauches." They are taken from reports from Production Horlogere Francaise to a member of the American Watch Manufacturers Association.

(4) Switzerland, 1948-55: Data are for exports of all types of watches. Although no production data are available, it is understood in trade circles that exports are equivalent to 95 percent of production. The export data are taken from the monthly bulletin of the Banque Nationale Suisse.

(5) Russia: Data were assembled by the European Division, U. S. Department of Commerce, partly from speeches of Russian officials. Figure for 1960 is the directive for the Sixth Five Year Plan (Pravda, Jan. 15, 1956).

TABLE 7.—*United States production of watches and imports for consumption, 1926-55*

[In thousands of units]

Period or year	United States production				United States imports for consumption ¹			Total
	Jeweled-lever	Pin-lever			Total	Containing 2 or more jewels	Containing no jewels or 1 jewel	
		Pocket	Wrist	Total				
Average:								
1936-30	1,836	7,634	1,020	8,654	10,490	2,780	1,157	3,937
1931-35	781	4,206	2,201	6,407	7,188	730	41	771
1936-40	1,678	7,025	2,588	9,613	11,291	2,639	199	2,838
1941-45	1,602	2,318	1,051	3,369	4,871	6,445	335	6,780
1946-50	2,475	4,639	3,157	7,796	10,271	7,399	865	8,264
Annual:								
1946	1,720	2,931	2,000	4,931	6,651	8,389	418	8,807
1947	2,364	4,873	4,321	9,194	11,558	6,957	300	7,257
1948	3,018	6,779	4,523	11,302	14,320	7,431	1,115	8,546
1949	2,793	4,107	2,182	6,289	9,082	6,539	1,160	7,699
1950	2,480	4,504	2,761	7,265	9,745	7,675	1,333	9,008
1951 ²	3,162	5,084	3,242	8,326	11,488	8,828	2,248	11,076
1952 ²	2,433	3,295	2,758	6,053	8,486	8,737	2,270	11,007
1953 ²	2,365	2,710	3,321	6,031	8,396	10,020	2,262	12,282
1954 ²	1,716	2,708	2,974	5,682	7,398	7,393	1,972	9,365
1955 ²	1,926	3,078	3,518	6,596	8,522	6,355	3,293	9,648

¹ Excludes movements that enter commercial channels as clocks.

² Imports data for 1951-53 and all data for 1954-55 are preliminary.

Source: For 1926-53, United States production data are from tables 6 and 8 of U. S. Tariff Commission's report on watches, movements, and parts to the President on escape-clause investigation No. 26, May 1954; data on United States imports for consumption are from table 3 of the same report.

For 1954-55, production data are estimates by American Watch Manufacturers Association. Import data are from Bureau of Census Report FT 110, adjusted by elimination of 90 percent of 2 to 7 jewel movements over 1.5-inch in width, which are estimated to be small clock movements.

TABLE 8.—*Participation of domestically manufactured jeweled watches in the apparent United States watch market*

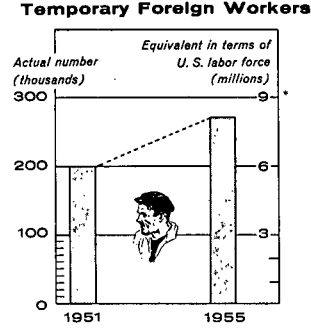
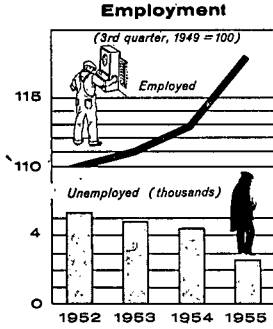
[In thousands of units]

Period	United States imports of watch movements with 2 or more jewels (excluding small clocks)	Domestic production 2 jewel and over	Total apparent United States consumption	Percent imports of total	Percent domestic production of total
Average 1926-30.....	2,780	1,836	4,616	60	40
Average 1931-35.....	730	781	1,511	48	52
1936 Swiss Trade Agreement: A average 1936-40.....	2,639	1,678	4,317	61	39
World War II: A average 1941-45.....	6,445	1,602	8,047	80	20
Post-World War II: A average 1946-50.....	7,399	2,475	9,874	75	25
1951.....	7,884	3,102	10,986	72	28
1952.....	7,757	2,385	10,142	76	24
1953.....	8,919	2,333	11,252	79	21
1954.....	7,390	1,716	9,106	81	19
1955.....	6,359	1,926	8,285	77	23
A average 1951-53.....	8,187	2,607	10,794	76	24
A average 1954-55.....	6,874	1,821	8,695	79	21

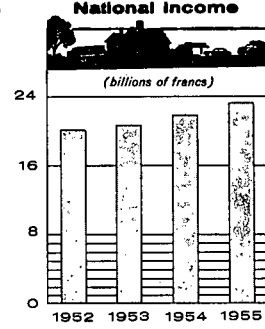
Source: For 1926-53, United States production data are from tables 6 and 8 of U. S. Tariff Commission's report on watches, movements, and parts to the President on escape-clause investigation No. 26, May 1954; data on United States imports for consumption are from table 3 of the same report.

For 1954-55, production data are estimates by American Watch Manufacturers Association. Import data are from Bureau of Census Report F T 110, adjusted by elimination of 90 percent of 2 to 7 jewel movements over 1.5 inches in width, which are estimated to be small clock movements.

Highlights of the Swiss Economy, 1952-1955

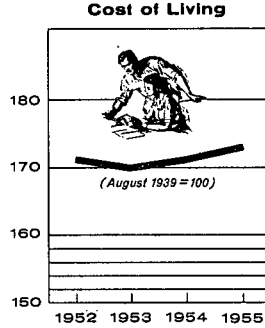
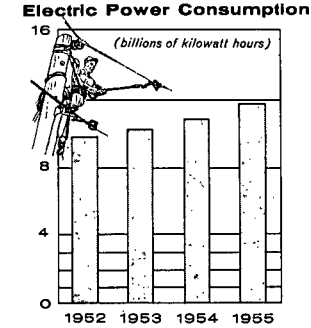
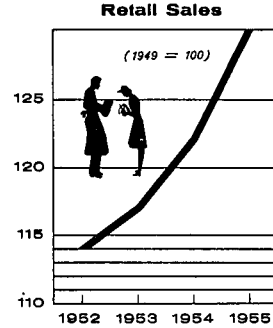
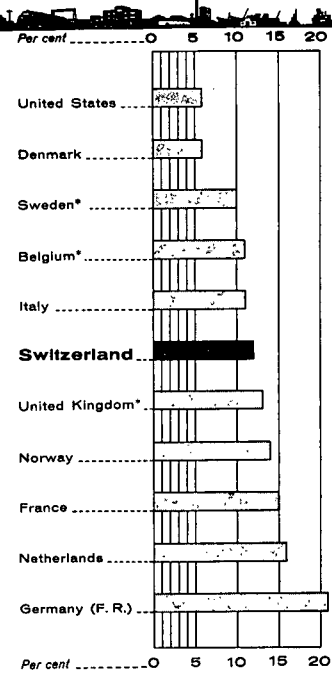


*United States labor force is 30 times as great as the labor force of Switzerland



National Income Comparisons

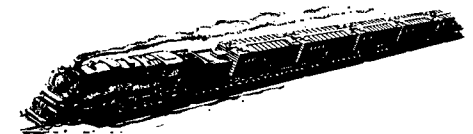
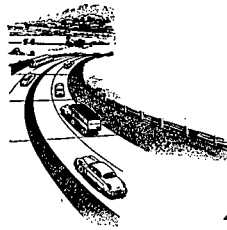
Increase 1953-1955



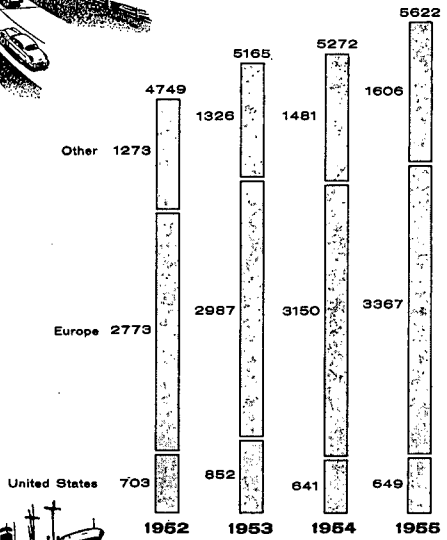
*Data are for gross national product instead of national income.

The Swiss Export Picture, 1952-1955

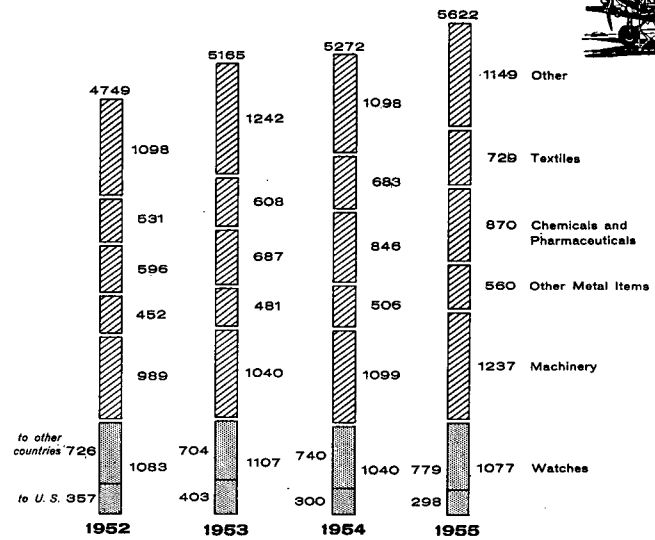
(in millions of francs)



By Region

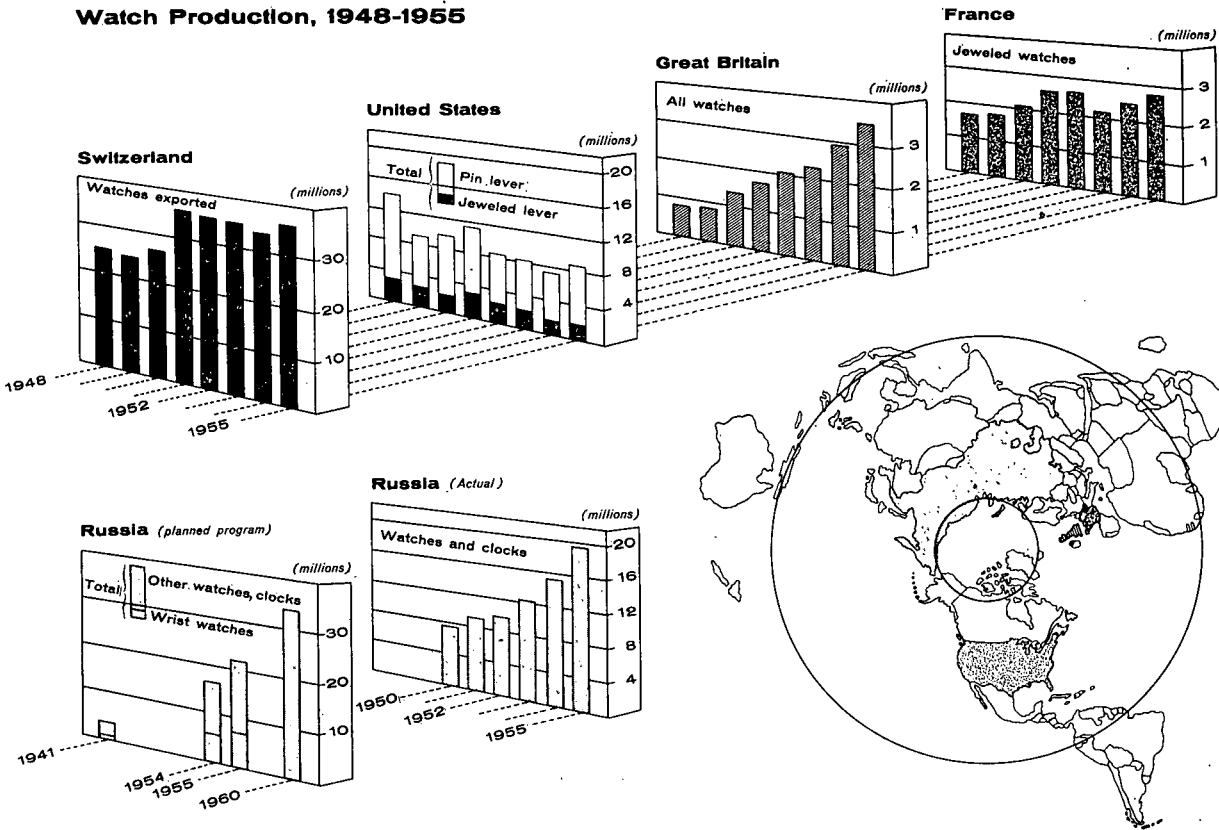


By Commodity Class



to other countries 726
to U.S. 357

Watch Production, 1948-1955



(Whereupon, at 12:10 p. m., the subcommittee recessed, to reconvene at 9:30 a. m., Tuesday, June 5, 1956.)

DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

TUESDAY, JUNE 5, 1956

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY,
JOINT ECONOMIC COMMITTEE,
Washington, D. C.

The subcommittee met, pursuant to recess, at 9:35 a. m., in the District of Columbia Committee room, United States Capitol Building, Washington, D. C., Hon. Richard Bolling (chairman of the subcommittee) presiding.

Present: Representative Bolling, Senators Douglas and Flanders, and Representative Talle.

Also present: Representative Curtis.

Grover W. Ensley, executive director; John W. Lehman, clerk; and Charles S. Sheldon II, staff economist.

Representative BOLLING. The subcommittee will be in order.

Before I proceed to the business of today's hearing, I would like to clear up the matter of our meeting place tomorrow. Tomorrow's hearing will be in the caucus room of the Senate Office Building, at the same time, at 9:30.

As I explained in my opening statement yesterday, each of the sessions on trade restrictions taken in the name of defense essentiality is being devoted to some facet of this problem. We have heard a general review of the problems by a panel of experts, and a summary of the background tariff history of the watch industry.

Today we are to hear from importers of watch movements, and from their association. The schedule of witnesses to be heard has been made a part of the record. With minor changes it still stands. Mr. C. H. Kalquist will be here on Thursday instead of today. The other changes for Thursday will be announced that morning.

There are three witnesses to be heard today. As I announced yesterday, we will hear from each witness with a minimum of interruption, and save our questions for the discussion period after all have been heard. Where an abbreviated oral statement is made, the full statement will be printed in the record.

Our first witness this morning is Mr. Samuel W. Anderson, president of the American Watch Association. After taking his Master of Business Administration in the Harvard Graduate School of Business, he became an investment banker. In the Government he served with the War Production Board, the ECA, and the World Bank. He also was Deputy Administrator of the DPA for the aluminum program. After that he became the Assistant Secretary of Commerce for Inter-

national Affairs. Last September he left Government service. Now he heads the association of importers and assemblers.

Mr. Anderson, we are happy to have you with us, and you may proceed as you wish.

STATEMENT OF SAMUEL W. ANDERSON, PRESIDENT, AMERICAN WATCH ASSOCIATION, WASHINGTON, D. C.

Mr. ANDERSON. Thank you, sir.

As you said, we have prepared a rather lengthy statement to be filed for the record, which is too long so I am going to read a rather boiled-down summary of it.

The American Watch Association is composed of over 60 leading American firms who import watch movements, and a relatively few complete watches, assemble the movements into finished watches in this country and sell these products from coast to coast.

It may interest this subcommittee to know that of every dollar spent at retail for a so-called Swiss watch, only 15 cents goes to Switzerland to pay for the movement. The remaining 85 cents stays in this country to pay for the cases, dials, bands, attachments, bracelets, boxes, assembly and timing, packaging, displays, sales promotion and advertising, distribution, wholesale and retail margins—and, of course, duties and taxes. As a matter of fact, a larger percentage of the retail cost of these watches goes to the American Government to cover the duty and excise tax, not to mention income taxes, then goes to Switzerland to pay for the watch movement.

As American businessmen and citizens, the members of our association are deeply concerned with the preservation of United States national security. We recognize as vividly as any other citizens the dangerous threats to world peace that are present today.

It is our conviction, however, that the national security can and should be maintained and strengthened without impairing trade relations with our friends overseas. In fact, we are convinced that the United States national security is closely interwoven with the economic and military strength of the free nations, and that the imposition of trade barriers among the friendly countries inevitably damages the total strength of the free world—even though these protectionist actions may be taken under the guise of national defense.

These are the matters which we would like to discuss with you today, with particular reference, of course, to the extent, if any, which the importation of watch movements may affect the national security. It is indeed fitting that this subcommittee should devote special consideration to the watch tariff situation because this issue has become symbolic of the continuing fight between those who believe in expanded world trade and those who feel that United States industry must be protected from foreign competition. There is no doubt that the defense argument has become increasingly a rallying cry for the protectionist forces, and that decisions reached by the executive branch in the watch industry will tend to set precedents for a substantial segment of the United States industrial economy.

Before getting into the details of the watch tariff dispute, however, I think it would be helpful for me to place the defense essentiality problem into its proper perspective in relation to the broad issues

before your subcommittee. Mr. Chairman, this was done very effectively yesterday, and to some degree what I am going to say now is a repetition or endorsement of some of the things that were said yesterday. I can certainly lay no claim, Mr. Chairman, to possessing competence in the forecasting of the nature of war. I have, however, been increasingly impressed with the growing conviction on the part of many knowledgeable Americans that if a general war should come, with the use of atomic and hydrogen weapons, victory or defeat would probably depend on "forces in being" rather than upon industrial might exerted over a period of years, as was the case in previous wars.

This subcommittee, I know, considered this question carefully and heard much expert and intelligent testimony on it. It seems to me that if this weapons-in-being concept is valid, we do ourselves very ill service if we place our faith and spend our resources in preparing for fighting the last war, as the French unhappily did after World War I. As the subcommittee report succinctly put it, "If nuclear war comes, the suddenness of the attack and the widespread destruction of industry both may militate against any orderly conversion in accord with a previous plan."

But even assuming that a future war would allow us time to utilize our productive capacity, it is apparent that under these circumstances all manufacturing industry can, and should, be used for purposes which are vital to the national interest. Therefore, the very concept of attempting to single out industries which are deemed important to national defense and giving them special protection from import competition opens an enormous potential avenue for undermining our reciprocal-trade program. Furthermore, there is no doubt that efforts to build our domestic mobilization base through techniques which simultaneously weaken the economic and military strength of our friends abroad, and redound to the disadvantage of our own exporting industries, certainly do not add to our total national security. Quite the opposite.

This emphasizes the necessity for using extreme caution in resorting to protectionist devices on grounds of potential usefulness to wartime military production. Clearly, one of the most basic requirements is the establishment of well-ordered and mutually consistent criteria for satisfying the national security goal. Without such clear-cut criteria, it is apparent that the very concept of an industrial mobilization base can easily lead toward thinking in terms of economic and military isolation, rather than the collective security with other free nations to which this Nation has been dedicated under both Republican and Democratic administrations.

In terms of the dispute concerning the essentiality of the watch industry, these basic considerations have an enormous significance. First of all, I think it is evident that there is an important area of doubt as to whether there is any validity to the concept of stockpiling vital industrial skills, in terms of modern warfare. But even assuming that the mobilization base theory is valid—and we will accept this assumption for the remainder of this discussion, despite our basic doubts—it is apparent that the procedures used in the 1954 deliberations of the watch situation by the executive branch contained serious basic flaws.

For example, it is clear that the interagency committee which conducted the watch study established absolutely no criteria to guide the

individual departments in their background surveys of the industry. The reports submitted by the Commerce and Defense Departments—which we should like to file for the record at this time—I will give them to you—reflect the fact that each Department looked at the matter from a completely different point of view, with no basic assumptions about the nature of the assumed emergency, the relationship of the industrial mobilization base to total national security, or other basic standards.

In evaluating whether the national security requires higher tariffs or quotas or other forms of protection for the domestic watch manufacturers, it is not enough merely to determine whether these firms produce items which are important to national defense. The executive branch should also inquire into the following factors, among others:

1. Are the domestic watch manufacturers the only firms who are capable of producing the types and kinds of military equipment which is procured from them, or can these items be procured from other firms?

2. What is the relationship, if any, between the ability of the watch manufacturers to produce military equipment and their output of civilian watches?

3. Has there been a decline through the years in domestic watch production? If so, what has been the cause of this decline, and is this significant in terms of the defense mobilization base?

4. What is the true nature of the particular skills possessed by the domestic manufacturers that enable them to make defense items?

5. Are these critical skills in short supply now, or are they in danger of becoming scarce, on a national basis?

6. What would be the reaction among our overseas friends if the United States should impose further import restrictions?

7. What steps can be taken to increase the base of truly critical skills in this country, without resorting to protectionist devices which impair the strength of our friends?

I should now like to discuss some of these factors; witnesses who will follow me from the importer-assembler industry will discuss certain other aspects in detail.

ARE THE DOMESTIC WATCH PRODUCERS UNIQUELY QUALIFIED TO PRODUCE DEFENSE ITEMS?

There is no doubt that the domestic watch manufacturers are producing defense equipment of a kind which is of importance to our armed services. Certainly we in the importing segment of the industry do not question this obvious fact.

We are certain, however, that defense work of this same type and character is being performed by scores of other defense contractors. In this connection, I should like to refer to the Defense Department's report of April 1954, which we have filed in the record. This report on the essentiality of the jeweled-watch industry was described as—
one of the most complete studies made of end item full mobilization requirements for a single industry—

and Mr. C. S. Thomas, Assistant Secretary of Defense, stated that—the conclusions have been reached after careful consideration by cognizant officials of the Department.

In this report, the Defense Department pointed out that—
only 11 percent of the total mobilization requirement (for all timing devices) planned with industry is with the jeweled-watch industry.

It also stated that—

there does not appear to be any part of the manufacture or assembly of mechanical time fuzes that is peculiar only to the jeweled-watch industry.

and that—

every part is being produced by some company other than a jeweled-watch firm. For these and other reasons, the report concluded that the needs of the Defense Department for industrial capacity clearly demonstrate that—no special or preferential treatment for the jeweled-watch industry is essential.

The Defense Department study listed 27 companies which produced the same types of military equipment requiring identical precision, and in at least equal quantities. Some of the great names in American industry—including Eastman Kodak, Bendix Aviation, Thomas A. Edison Corp., National Cash Register, International Business Machines, Singer Sewing Machine, Underwood-Elliott-Fisher, and many, many others—were listed as being engaged in the manufacture of military items of the same character as those obtained from the jeweled-watch industry. These companies, of course, employ tens of thousands of skilled workers who are readily available for defense work and whose records show that they are capable of mass producing the finest, most precise ordnance equipment.

As a matter of fact, several watch importer-assembler firms enjoy outstanding records of defense production, having furnished the same types of defense items as the jeweled watch manufacturers. Witnesses who will follow me today will discuss this matter in greater detail; and in my complete statement which I have submitted for the record, there is a summary by Mr. Edward Weitzen, president of Gruen Watch Co., of the vast quantity of precision defense work performed by that company.

IS THERE A RELATIONSHIP BETWEEN WATCH OUTPUT AND MILITARY PRODUCTION?

You gentlemen will understand, of course, that Gruen has no domestic watch production, and relies on imports from its plant in Switzerland. Yet Gruen is now engaged in a number of advanced defense projects, unique in character and most certainly unique as far as the watch industry is concerned. The fact that its corporate entity is called "a watch company" bears little relationship to its defense manufacturing capability. Therefore, it is not fair in any discussion to ask whether there is any true relationship between the watch output and the defense production of the three jeweled watch manufacturers?

In this connection, it should be noted that the character of military requirements has shifted radically in recent years. During World War II, for example, there was a tremendous need for mechanical time fuses, whose parts are basically similar to watch movements. At the present time, however, military fuses have shifted into the field of electronics. The ability of these firms to work in electronics is

only remotely, if indeed at all, related to their ability to produce watches.

As a matter of fact, the jeweled watch manufacturers appear to have found it necessary to purchase electronics companies and instrument firms, and to construct entirely new plants in order to produce many of the defense items for which they have contracts. Again, in terms of the issues before this subcommittee, we submit that there is no real relationship between civilian watch production and the ability of these companies to manufacture defense items in plants which are completely separate from watchmaking operations, employ different personnel, and utilize different types of equipment.

ARE THE DOMESTIC PRODUCERS LOSING THEIR MARKET

We in the watch importing and assembling business want to make crystal clear that we have no desire to drive the domestic manufacturers from the market. We want them to survive and prosper so that the American consumer can have a maximum freedom of choice among competing products.

As a matter of fact, the record shows that the domestic manufacturers have made good profits, that their watch production has not decreased but has increased through the years, and that there is no serious threat to their future—provided they begin to eliminate the technological lag which has developed between their operations and those of the Swiss watch manufacturers. This is not a matter which can be achieved by higher tariffs or quotas; it requires positive action aimed at improving the product design and production techniques of the American companies. These matters will be discussed in greater detail by Mr. Fred Cartoun of the Longines-Wittnauer Watch Co., who will testify later.

WHAT ARE THE TRULY CRITICAL SKILLS POSSESSED BY THE DOMESTIC WATCH MANUFACTURERS?

On previous occasions, the domestic watch manufacturers have testified about the high degree of skills possessed by their production workers and about the years and years which are required to train these men in precision work.

There was a time, not many years ago, when many precision industries were dependent on production workers having a very high degree of skill and requiring years of training. For example, production of optical equipment was dependent on the availability of lens grinders who worked manually and required extreme talent. Similarly, the production of ball bearings, precision instruments, and virtually all other precision equipment required a production force with years of training.

However, during World War II, when it became necessary to expand the output of these products enormously, United States industry began to develop ways of overcoming the bottlenecks caused by the shortage of skilled manpower. This was accomplished, essentially, through breaking down these complex and intricate operations into many component parts. Machines were developed, in turn, which could handle each of these steps and which could be operated by relatively unskilled personnel. The net result was an enormous expansion of production at a great saving in time and cost.

During the postwar years, the process of substituting machine operations for hand skills has continued on an accelerated basis. Today, a large segment of American industry has developed automation techniques which have completely changed the requirements of the labor force. Under modern conditions, it is no longer necessary to train production workers for years in order to develop the skills required for close precision manufacturing; production workers can generally be trained to operate automatic machines within a period of days, or at the most, weeks.

What a precision manufacturer requires under modern conditions is a relatively small group of highly educated and experienced scientists, engineers, and technicians who can design and produce the machine tools which are capable of handling the production job. These doctor of philosophy-type engineers form the truly critical skills which are now required for mass production of precision equipment. Most important, from the standpoint of "stockpiling essential skills," is the fact that these key scientists and engineers are generally capable of designing the necessary machinery for use on production lines in virtually any type of precision goods. In other words, the same type of skill that is required to design modern automatic equipment used on production lines for manufacturing complex computers or for grinding and polishing lenses on a mass-production basis could also create watch manufacturing facilities.

I should mention one other type of skill which is important under modern manufacturing conditions. These are the talented workmen who are necessary to maintain the machine tools in good running order. Again, however, these skilled technicians are generally interchangeable between various types of precision industries, with very little additional training required.

Of major importance to this committee, in view of the concept which has been advanced that watchmaking skills must be preserved, is the fact that under modern manufacturing conditions, it is no longer necessary to have a production force requiring skills which are unique to the watch manufacturing industry and which require long years of training. If the domestic manufacturers claim, as they have in the past, that they require a substantial body of production workers who have developed their skills over a long period of time, it may be a reflection of the fact that the domestic watch manufacturing industry has not kept pace with modern technology and has been slow to adapt automation techniques to their operations.

Mr. Chairman, I believe that the shift which has taken place in manufacturing techniques is of the utmost importance in any consideration of the question of whether an attempt should be made to stockpile skills for the mobilization base.

IS THERE A SHORTAGE OF CRITICAL SKILLS?

It is quite apparent that there is a growing shortage of the key scientific and engineering skills required to keep American industry in its position of world leadership. Dr. David, of course, testified very eloquently about this yesterday. This shortage is prevalent throughout the economy. If the Government looks at the three

jeweled-watch manufacturers, or at virtually any other precision firms, it is likely to find a shortage of these key engineering skills.

However, it does not follow that the shortage can be overcome by higher tariffs or quotas. The only effective method of improving our national base of scientific and engineering talent is through direct action aimed at increasing the number and proficiency of our technical graduates. President Eisenhower has recently taken a very important step in this direction through the appointment of the National Committee for the Development of Scientists and Engineers, headed by Dr. Howard L. Bevis, president of Ohio State. This very distinguished committee is in a position to recommend positive, constructive steps for expanding base of critical skills.

Certainly, this is the type of action which should be taken by our Government to meet this situation. Rather than curtail competition from foreign products, many of which—including watches—are of a more advanced design than their American counterpart, we must improve the skills which we in America require for national defense. In fact, history shows that the interchange of ideas which results from a free interplay of competition both on the domestic and international scene is one of the greatest stimulants toward improved technology and new inventions, many of which are of key importance to our national defense.

WHAT STEPS SHOULD BE TAKEN TO PRESERVE CRITICAL SKILLS?

The question of whether there is a shortage of skilled manpower should be approached from the standpoint of the Nation as a whole, rather than on an industry-by-industry, or company-by-company basis. If such an examination discloses that we are in danger of having a national shortage of skilled manpower of a vital type, then it is obvious that positive steps should be taken to alleviate the shortage.

It does not make any difference what has created the shortage. It could be caused by educational deficiencies, or by a lack of economic incentive or other factors. Regardless of the cause, the answer lies in training additional manpower in vital scientific, engineering and tool-designing skills. Insofar as skills in the watch industry are concerned, we shall describe how the Swiss assure themselves of a steady supply of the finest horological engineers when Mr. Lazrus testifies later today. Certainly, in my opinion, there are many things which the United States Government can also do along these lines. For example:

1. The United States should consider expanding the concept of our technical-assistance program, to make it a two-way street. The United States has no monopoly on scientific and engineering skills. We have much to learn from our friends abroad, including the Swiss, the Germans and many others. It is quite possible that the Swiss would be willing to share some of their horological know-how with us, in exchange for similar United States aid in other fields.

2. Our Government should encourage the establishment of technical and engineering schools to improve skills useful in designing and in planning and constructing the complex machinery used on automatic precision production lines. So far as I know, there is not a single university in this country which teaches courses aimed at advancing horological technology. There are, of course, many trade

schools which teach watch-repair work, but this is not the type of high-level skill which is required to make the United States industry competitive with its Swiss counterpart.

3. The Government should judge the desirability of each action it is considering on behalf of the domestic watch manufacturers in terms of whether or not it will lead to an improvement in their watch-making technology. By contrast, for the past 2 years the executive branch has been going in exactly the opposite direction by assuring the domestic watch manufacturers that the Government will intervene to make certain that they sell at least 2 million units per year regardless of their technological inefficiency. Under these circumstances, there is obviously no incentive for the domestic manufacturers to improve their operations.

4. If the Government finds that still further assistance is required in order to keep certain vital horological skills intact, such assistance should be given in the form of a direct subsidy, rather than through the indirect device of forcing the public to pay higher prices through increased tariffs and other trade restrictions. The experience of the past 2 years has clearly demonstrated that trade barriers are an ineffective method of preserving domestic skills. As we will explain later, the 50 percent increase in tariffs has cut imports very sharply, but has resulted in a relatively small boost in domestic production. Efforts by the Government to restrict imports should be abandoned as a means of preserving the skills deemed to be vital in this industry and, if necessary, funds should be allocated from the defense budget to pay for these purposes. In this manner, the cost would be clearly visible and the results could be measured against such costs.

This concludes, with one exception of one short statement at the end, Mr. Chairman, my presentation. As you can see, we have divided the scope of our testimony among the three watch importing witnesses in order to avoid duplication.

Mr. Fred Cartoun, who will be third, will discuss the trend in sales by the domestic watch industry, and whether there is any real threat that vital engineering skills will disappear. Mr. Cartoun will also explain why the domestic jeweled watch manufacturers do not enjoy a greater share of the total market, and what they could do to increase their percentage of retail sales. Finally, he will discuss the effects of the 1954 tariff increase on various segments of the watch industry.

Our second witness, Mr. Ralph Lazrus, will describe the defense production efforts of watch importer-assembler firms. He will also discuss the relative cost of watch production in the United States and in Switzerland. Finally, Mr. Lazrus will discuss the methods by which the Swiss assure themselves of an adequate supply of key horological skills—methods which might be adopted in part by this country.

Before I close, Mr. Chairman, I would like the privilege of reading a brief statement which has to do with some of the remarks yesterday.

In all of our statements, Mr. Chairman, we have tried to restrict ourselves to factors which we deem to be pertinent to this inquiry; that is, the method of maintaining our national security without impairing United States foreign economic policy. We have tried to avoid getting enmeshed in fringe issues which have arisen in connection with the watch dispute, such as the so-called up-jeweling and adjustment situations. However, in view of the fact that those issues

were raised yesterday by Dr. Bidwell, and we think that some of his statements were incorrect, we would appreciate the opportunity to file written statements amplifying these matters, which are of vital significance to the future of the watch importer-assembler industry.

I would like to state very flatly at this time that the adjustment provision of the 1930 Tariff Act has been interpreted consistently for the past 26 years, that a study of the legislative history of this provision clearly demonstrates that it is being interpreted in accordance with the intent of Congress, and that the Treasury Department has recently reaffirmed its interpretation after an exhaustive study, both in this country and in Switzerland.

I should also like to state emphatically that it is a complete misconception to view the remanufacturing operation performed by some importer-assemblers to raise the jewel count as a loophole in the tariff law or as a device for evading the duties intended by Congress. As a matter of fact, most imported commodities are processed after their arrival in the United States, and the courts have consistently upheld the right to do so.

This committee should understand that no movements are now entering the country which are specifically designed to ease the substitution of jewels for metal bearings; that the percentage of imported movements of a conventional variety which are being up-jeweled is exceedingly small, probably less than 1 percent; and that there is absolutely no evidence that this practice has any adverse effect on the market of the domestic manufacturers.

These are the matters which we would like to discuss in a separate statement, since we feel that they are not of direct relevance to these proceedings.

Thank you very much.

Representative BOLLING. That raises a question that applies to all witnesses who have appeared or will appear before the committee, about submitting additional statements, and the committee will receive additional statements until the close of business on Monday afternoon, which means that any such statement will have to be in the office of the Joint Committee on the Economic Report by 4:30 o'clock Monday afternoon.

I am not making a commitment at this time, but subject to the approval of the full subcommittee, we will accept the statements for the record. We will accept any statements of a reasonable length, but we wish to avoid the possibility of receiving excessively voluminous statements which crowd the record.

Therefore, we will accept additional statements after the hearings have closed on Thursday, until Monday at 4:30, and they will be subject to the review of the subcommittee as to whether they are excessive in length.

Does that meet with the approval of the other members of the subcommittee?

Senator FLANDERS. Yes, sir.

(Mr. Anderson's prepared statement and material submitted by him are as follows:)

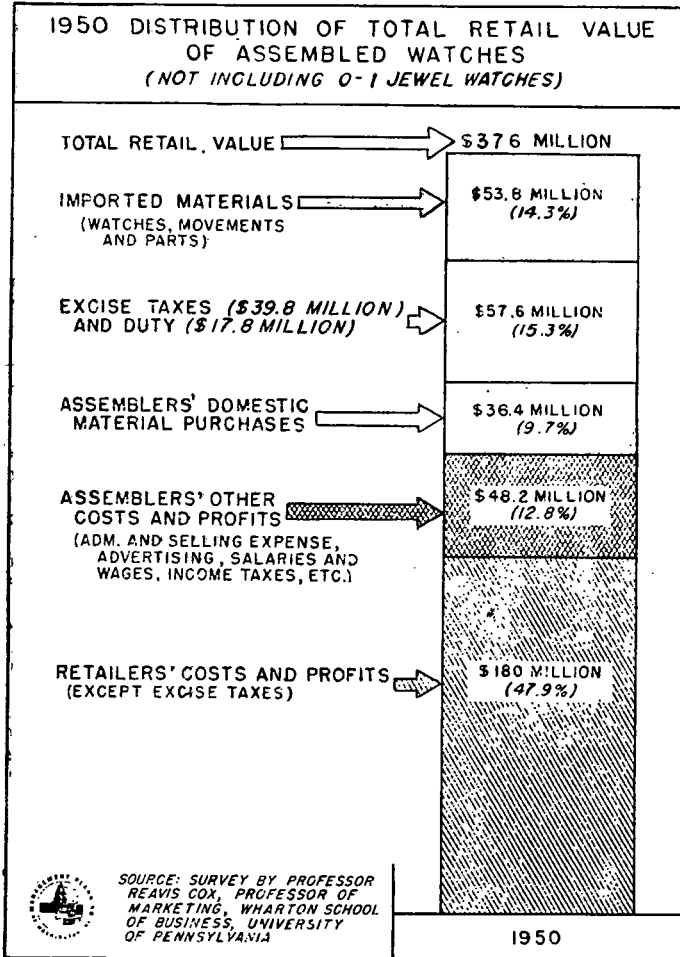
STATEMENT OF SAMUEL W. ANDERSON PRESIDENT, AMERICAN WATCH ASSOCIATION, INC.

My name is Samuel W. Anderson. I am president of the American Watch Association, with offices at 1700 K Street NW., Washington, D. C. The American

Watch Association is composed of over 60 leading American firms who import watch movements (and a relatively few completely watches), assemble the movements into finished watches in this country, and sell these products from coast to coast.

It may interest this subcommittee to know that of every dollar spent at retail for a so-called Swiss watch, only 15 cents goes to Switzerland to pay for the movement. The remaining 85 cents stays in this country to pay for the cases, dials, bands, attachments, bracelets, boxes, assembly and timing, packaging, displays, sales promotion and advertising, distribution, wholesale and retail margins—and, of course, duties and taxes. As a matter of fact, a larger percentage of the retail cost of these watches goes to the American Government to cover the duty and excise tax, not to mention income taxes, than goes to Switzerland to pay for the watch movement.

Below there is reproduced a chart, based on a 1950 survey by Prof. Reavis Cox of the Wharton School of Finance at the University of Pennsylvania, showing what happens to the retail dollar spent for a watch containing a Swiss movement. I might note that the 1954 tariff increase has changed these figures somewhat, enlarging the percentage of the retail dollar which goes toward excise taxes and duties and decreasing the percentage which represents the cost of the movement in Switzerland.



The business of importing Swiss movements, assembling them into watches, and merchandising the finished products in this country is truly an American industry. Millions of dollars of American capital are invested in the importer-assembler companies which employ tens of thousands of American workers. Their contribution to the United States economy, in terms of direct and indirect employment, capital investment, taxes, and sales, is far greater than that of the domestic jeweled watch manufacturers.

As American businessmen and citizens, the members of our association are deeply concerned with the preservation of United States national security. We recognize as vividly as any other citizens the dangerous threats to world peace that are present today.

It is our conviction, however, that the national security can and should be maintained and strengthened without impairing trade relations with friends overseas. In fact, we are convinced that the United States national security is closely interwoven with the economic and military strength of the free nations, and that the imposition of trade barriers among the friendly countries inevitably damages the total strength of the free world—even though these protectionist actions may be taken under the guise of national defense.

These are the matters which we would like to discuss with you today, with particular reference, of course, to the extent, if any, which the importation of watch movements may affect the national security. We want you to know that we are exceedingly grateful for this opportunity to explain publicly our position on the relationship between United States efforts to maximize our national security and our basic national policy of encouraging an expanded flow of world trade. It is indeed fitting that this subcommittee should devote special consideration to the watch tariff situation because this issue has become symbolic of the continuing fight between those who believe in expanded world trade and those who feel the United States industry must be protected from foreign competition. There is no doubt that the defense argument has become increasingly a rallying cry for the protectionist forces, and that decisions reached by the executive branch in the watch industry will tend to set precedents for a substantial segment of the United States industrial economy.

Before getting into the details of the watch tariff dispute, however, I think it would be helpful for me to place the defense essentiality problem into its proper perspective in relation to the broad issues before your subcommittee.

The very subject of these hearings, national security and foreign economic policy, implies that there may be a basic conflict between a policy of maintaining maximum national security and a foreign economic policy that seeks an increased flow of international trade. Such a conflict, however, exists only in the minds of those who have come to the conclusion that the policy of maximizing national security is advanced by protecting specific industrial facilities and skills from foreign competition.

I would suggest that there are many hurdles to be jumped before one can arrive at such a conclusion. For example, there is the basic and difficult question of whether, from a modern military point of view, it makes sense to attempt to maintain, by any artificial means, industrial resources which might be converted to defense production during a future emergency.

I can certainly lay no claim, Mr. Chairman, to possessing competence in forecasting the nature of war. I have, however, been increasingly impressed with the growing conviction on the part of many knowledgeable Americans that if a general war should come, with the use of atomic and hydrogen weapons, victory or defeat would probably depend on "forces in being" rather than upon industrial might exerted over a period of years, as was the case in previous wars. Your distinguished colleague, Senator Jackson, put it well in an article in the New York Times a few days ago when he said, "The fact is that we will never again in total war be permitted to mobilize armed strength as we did after December 7, 1941. The precious gifts of time and space, which once permitted the construction of a vast military machine after hostilities had begun, are gone forever. * * * The United States now requires what is for her a revolutionary defense philosophy, and is going through the growing pains of getting it. In essence, such a philosophy is based on the principle that the United States must have on hand, ready for use, the weapons and delivery systems essential to ultimate survival in an all-out war."

This subcommittee, I know, considered this question carefully and heard much expert and intelligent testimony on it. It seems to me that if this weapons-in-being concept is valid, we do ourselves very ill service if we place our faith and spend our resources in preparing for fighting the last war, as the French

unhappily did after World War I. As the subcommittee report succinctly put it, "If nuclear war comes, the suddenness of the attack and the widespread destruction of industry both may militate against any orderly conversion in accord with a previous plan."

But even assuming that a future war would allow us time to utilize our productive capacity, it is apparent that under these circumstances all manufacturing industry can, and should, be used for purposes which are vital to the national interest. Under conditions of full mobilization, there should be no industry, in fact no company, which would not be producing goods and services important to the Armed Forces or to the health and strength of the civilian economy.

Therefore, the very concept of attempting to single out industries which are deemed important to national defense and giving them special protection from import competition opens an enormous potential avenue for undermining our reciprocal trade program. Furthermore, there is no doubt that efforts to build our domestic mobilization base through techniques which simultaneously weaken the economic and military strength of our friends abroad, and rebound to the disadvantage of our own exporting industries, certainly do not add to our total national security. Quite the opposite.

This emphasizes the necessity for using extreme caution in resorting to protectionist devices on grounds of potential usefulness to wartime military production. Clearly, one of the most basic requirements is the establishment of well-ordered and mutually consistent criteria for satisfying the national security goal. Without such clear-cut criteria, it is apparent that the very concept of an industrial mobilization base can easily lead toward thinking in terms of economic and military isolation, rather than the collective security with other free nations to which this Nation has been dedicated under both Republican and Democratic administrations.

In terms of the dispute concerning the essentiality of the watch industry, these basic considerations have an enormous significance. First of all, I think it is evident that there is an important area of doubt as to whether there is any validity to the concept of stockpiling vital industrial skills, in terms of modern warfare. But even assuming that the mobilization base theory is valid—and we will accept this assumption for the remainder of this discussion, despite our basic doubts—it is apparent that the procedures used in the 1954 deliberations of the watch situation by the executive branch contained serious basic flaws.

For example, it is clear that the interagency committee which conducted the watch study established absolutely no criteria to guide the individual departments in their background surveys of the industry. The reports submitted by the Commerce and Defense Departments (which we should like to file for the record at this time) reflect the fact that each department looked at the matter from a completely different point of view, with no basic assumptions about the nature of the assumed emergency, the relationship of the industrial mobilization base to total national security, or other basic standards.

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I should now like to discuss some of these factors; witnesses who will follow me from the importer-assembler industry will discuss certain other aspects in detail.

ARE THE DOMESTIC WATCH PRODUCERS UNIQUELY QUALIFIED TO PRODUCE DEFENSE ITEMS?

There is no doubt that the domestic watch manufacturers are producing defense equipment of a kind which is of importance to our armed services. Undoubtedly, we will hear about this in detail when representatives of the domestic manufacturers are witnesses, and certainly we in the importing segment of the industry do not question this obvious fact.

We are certain, however, that defense work of this same type and character is being performed by scores of other defense contractors. In this connection, I should like to refer to the Defense Department's report of April 1954, which we have filed in the record. This report on the essentiality of the jeweled-watch industry was described as "one of the most complete studies made of end-item full mobilization requirements for a single industry," and Mr. C. S. Thomas, Assistant Secretary of Defense, stated that "the conclusions have been reached after careful consideration by cognizant officials of the Department."

In this report, the Defense Department pointed out that "only 11 percent of the total mobilization requirement (for all timing devices) planned with industry is with the jeweled-watch industry." It also stated that "there does not appear to be any part of the manufacture or assembly of mechanical time fuzes that is peculiar only to the jeweled-watch industry" and that "every part is being produced by some company other than a jeweled-watch firm." For these and other reasons, the report concluded that the needs of the Defense Department for industrial capacity clearly demonstrate that "no special or preferential treatment for the jeweled-watch industry is essential."

The Defense Department study listed 27 companies which produced the same types of military equipment requiring identical precision and in at least equal quantities. Some of the great names in American industry—including Eastman Kodak, Bendix Aviation, Thomas A. Edison Corp., National Cash Register, International Business Machines, Singer Sewing Machine, Underwood-Elliott-Fisher, and many, many others—were listed as being engaged in the manufacture of military items of the same character as those obtained from the jeweled-watch industry. These companies, of course, employ tens of thousands of skilled workers who are readily available for defense work and whose records show that they are capable of mass producing the finest, most precise ordnance equipment.

As a matter of fact, several watch importer-assembler firms enjoy outstanding records of defense production, having furnished the same types of defense items as the jeweled-watch manufacturers. Mr. Ralph Lazrus, of the Benrus Watch Co., who will appear later today, will describe some of the outstanding work performed by his company during World War II and the Korean emergency. The Longines-Wittnauer Watch Co., whose president is here today, also produced a considerable volume of military items in the last war. I am sorry that Mr. Edward Weitzen, president of Gruen Watch Co., is unable to appear, but he has furnished me with a statement concerning Gruen's current defense business, which I think the committee would find of interest at this time:

"Gruen is a publicly held, American-owned watch manufacturing company, a corporate citizen of Ohio, and an industrial taxpayer of Cincinnati where it has resided for almost four generations. We own, lease, and operate manufacturing plants in Cincinnati, Norwood, and Reading, Ohio. More than 2 out of every 3 industrial employees of the company are employed in these United States plants.

"As a matter of corporate policy, we have chosen to concentrate our watch manufacturing operations in Switzerland. Gruen's plant in Bienne is probably the most advanced of its kind anywhere in the world. It combines the automated assembly line production techniques of American industry with the inventiveness and professionalism of Swiss horological technicians. By this combination, we believe we can produce better watches of advanced Swiss construction and design at a competitive price for the American consumer.

"This Swiss manufacturing plant, as well as the Swiss company which operates it, is 100 percent owned by the parent Gruen Watch Co., of Cincinnati. Gruen is a domestic United States company, which has invested substantially in manufacturing facilities abroad because we believe it good business, because we believe in international trade, and because we hold it necessary to keep apace of advances in Swiss horology if we are to remain in the watch business.

"Approximately 1 year ago, at the time I joined Gruen after 10 years of experience in the watch industry, Gruen initiated a program of industrial diversification, aimed—in part—at defense production.

"Since that time, Gruen has accumulated a backlog of approximately \$5,500,000 in defense orders. Some of these contracts were won in competitive bidding against other domestic watch manufacturers. But most of them were awarded in competitive bidding against electronics manufacturers, radio and equipment manufacturers, instrument manufacturers, aircraft equipment manufacturers and large nationally-known corporations with precision competence and diversified interests.

"Today, Gruen is producing defense equipment for all three military services, the Army, the Navy, and Air Force. Our contractors include several large aircraft manufacturers, a leading industrial developer of equipment for atomic propulsion, a first-ranking participant in the intercontinental missile program, and other American companies no less distinguished in their industrial stature.

"Gruen's projects and products, moreover, span a vast area of defense and industrial interests. We have conceived and are developing advanced gyroscopic devices which are the result of genuine scientific breakthroughs. We have designed and are manufacturing electronics equipment for the testing of long-range missile navigational systems. We are engaged in the development of a new system of jet instrumentation. And we are producing, in addition to a small quantity of conventional time fuzes, oscilloscopes, accelerometers, potentiometers, and many other appliances for this technical age.

"All of Gruen's industrial and defense activities are centered in separate divisions, specifically organized for that function. Like the domestic watch manufacturers, Gruen has diversified into defense production because we believe it good business to counterbalance a consumer product as highly cyclic as a watch with a more stable industrial operation. Located as we are in one of the precision manufacturing centers of the Nation, we have experienced little difficulty in finding the trained engineers and skilled technicians required for these undertakings.

"Gruen's value to the national security as a producer of defense equipment is rooted in the imagination of our staff scientists, the ingenuity of our engineers, the skill of our technicians, and the wisdom of their direction."

IS THERE A RELATIONSHIP BETWEEN WATCH OUTPUT AND MILITARY PRODUCTION?

You gentlemen will understand, of course, that Gruen has no domestic watch production, and relies on imports from its plant in Switzerland. Yet Gruen is now engaged in a number of advanced defense projects, unique in character and most certainly unique as far as the watch industry is concerned. The fact that its corporate entity is called "a watch company" bears little relationship to its defense manufacturing capability. Therefore, is it not fair in any discussion to ask whether there is any true relationship between the watch output and the defense production of the three jeweled-watch manufacturers?

In this connection, it should be noted that the character of military requirements has shifted radically in recent years. During World War II, for example, there was a tremendous need for mechanical time fuzes, whose parts are basically similar to watch movements. At the present time, however, military fuzes have shifted into the field of electronics. The ability of these firms to work in electronics is only remotely, if indeed at all, related to their ability to produce watches.

As a matter of fact, the jeweled-watch manufacturers appear to have found it necessary to purchase electronics companies and instrument firms, and to construct entirely new plants in order to produce many of the defense items for which they have contracts. Again, in terms of the issues before this subcommittee, we submit that there is no real relationship between civilian watch production and the ability of these companies to manufacture defense items in plants which are completely separate from watchmaking operations, employ different personnel, and utilize different types of equipment.

As you gentlemen know, the Office of Defense Mobilization has recently instigated a review of the entire question of the essentiality of the jeweled-watch manufacturers, and has asked the Defense Department for certain information about current and projected military requirements from these firms. We sincerely hope that in compiling this information, the Defense Department will distinguish between items which are produced in the watchmaking facilities of these companies and the defense items which are produced in other departments

or plants owned by these companies. Otherwise, it seems to us, there is certain to be a distorted view of the role played by watchmaking personnel in their defense production. Certainly, these firms could continue to produce military equipment in their electronics, instruments, and defense plants or departments whether or not they continue to manufacture watch movements.

ARE THE DOMESTIC PRODUCERS LOSING THEIR MARKET?

We in the watch importing and assembling business want to make crystal clear that we have no desire to drive the domestic manufacturers from the market. We want them to survive and prosper so that the American consumer can have a maximum freedom of choice among competing products.

As a matter of fact, the record shows that the domestic manufacturers have made good profits, that their watch production has not decreased but has increased through the years, and that there is no serious threat to their future—provided they begin to eliminate the technological lag which has developed between their operations and those of the Swiss watch manufacturers. This is not a matter which can be achieved by higher tariffs or quotas; it requires positive action aimed at improving the product design and production techniques of the American companies.

These matters will be discussed in greater detail by Mr. Fred Cartoun, of the Longines-Wittnauer Watch Co., who will testify later. There is, however, one point which I should like to make at this time.

Within recent years, the three domestic manufacturers have greatly diversified their operations by entering the electronics, instrumentation and other new fields. Certainly, we do not quarrel with their decision to diversify, which reflects a growing trend in American industry.

What we do say is this: the diversification move, which has been accompanied by expanded civil and military production, has obviously required a large proportion of the managerial effort, as well as the financial and engineering resources of these companies. We are convinced that, as a result, these firms have been neglecting their watch manufacturing and merchandising operations to some extent. While they put their time and money in new fields, they have allowed their watch operations to fall far behind their Swiss competitors.

To us, it appears most unfair for the Government to impose severe handicaps on watch importer-assemblers in an attempt to compensate for the fact that the domestic manufacturers have been neglecting this end of their business.

WHAT ARE THE TRULY CRITICAL SKILLS POSSESSED BY THE DOMESTIC WATCH MANUFACTURERS?

On previous occasions, the domestic watch manufacturers have testified about the high degree of skills possessed by their production workers and about the years and years which are required to train these men in precision work. They have emphasized that in wartime, if such a body of production workers was not intact, it would be impossible to gather and train them on an emergency basis. This, they argue, is the reason why we must continue to have a steady output of watches in the United States. We shall probably hear this argument repeated at these hearings.

Now the fact of the matter is that this argument, appealing though it is on the surface, simply does not apply to modern precision manufacture. There was a time, not many years ago, when many precision industries were dependent on production workers having a very high degree of skill and requiring years of training. For example, production of optical equipment was dependent on the availability of lens grinders who worked manually and required extreme talent. Similarly, the production of ball bearings, precision instruments, and virtually all other precision equipment required a production force with years of training.

However, during World War II, when it became necessary to expand the output of these products enormously, United States industry began to develop ways of overcoming the bottlenecks caused by the shortage of skilled manpower. This was accomplished, essentially, through breaking down these complex and intricate operations into many component parts. Machines were developed, in turn, which could handle each of these steps and which could be operated by relatively unskilled personnel. The net result was an enormous expansion of production at a great saving in time and cost.

During the postwar years, the process of substituting machine operations for hand skills has continued on an accelerated basis. Today, a large segment

of American industry has developed automation techniques which have completely changed the requirements of the labor force. Under modern conditions, it is no longer necessary to train production workers for years in order to develop the skills required for close precision manufacturing; production workers can generally be trained to operate automatic machines within a period of days, or at the most, weeks.

What a precision manufacturer requires under modern conditions is a relatively small group of highly educated and experienced scientists, engineers, and technicians who can design and produce the machine tools which are capable of handling the production job. These Ph.D.-type engineers form the truly critical skills which are now required for mass production of precision equipment. Most important from the standpoint of "stockpiling essential skills" is the fact that these key scientists and engineers are generally capable of designing the necessary machinery for use on production lines in virtually any type of precision goods. In other words, the same type of skill that is required to design modern automatic equipment used on production lines for manufacturing complex computers or for grinding and polishing lenses on a mass production basis could also create watch manufacturing facilities.

I should mention one other type of skill which is important under modern manufacturing conditions. These are the talented workmen who are necessary to maintain the machine tools in good running order. Again, however, these skilled technicians are generally interchangeable between various types of precision industries, with very little additional training required.

Of major importance to this committee, in view of the concept which has been advanced that watchmaking skills must be preserved, is the fact that under modern manufacturing conditions, it is no longer necessary to have a production force requiring skills which are unique to the watch manufacturing industry and which require long years of training. If the domestic manufacturers claim, as they have in the past, that they require a substantial body of production workers who have developed their skills over a long period of time, it may be a reflection of the fact that the domestic watch manufacturing industry has not kept pace with modern technology and has been slow to adapt automation techniques to their operations.

In Switzerland, watch factories generally have installed the most modern precision watchmaking machines. Again, to illustrate this point, I would like to quote from a memorandum furnished to me by Mr. Weitzen, president of the Gruen Watch Co., which manufactures its movements in a modern Swiss factory.

"Just as a clinically minded doctor, anxious to keep apace of his profession, will establish his practice in a medical or teaching center, so will a watch manufacturer—eager to maintain the technological superiority of his product—locate his plant in the most advanced horological center. This, fundamentally, was the reasoning that induced Gruen to locate its manufacturing operations in Switzerland.

"There is a notorious lack in the United States of the really creative horologists that have made watchmaking a profession in Switzerland. As a consequence, the Swiss have maintained technological leadership in the watch industry while American manufacturers have not.

"The wholly owned Gruen manufacturing plant in Bienne, Switzerland, benefits directly from the intensive horological research and development activity of the Swiss. Gruen introduced the first practical thin watch to the American market. Gruen introduced the first oblong ladies movement. Gruen invented the Curvex movement. And Gruen produced the first ladies sized self-winding watch movement. All of these firsts were the product of creative engineering, advanced design, and skilled horology.

"More recently, Gruen has endeavored to equate its production techniques with these advances in horology and design. This we have done by introducing automation into the manufacture of watch movements. With automated machinery, we obtain closer tolerances, greater uniformity, speedier production, reduced waste, and we enormously simplify personnel skill requirements.

"Critical skills are confined primarily to those employees who design and build tools, dies, and machines as well as those who set up and maintain the automated machines. In all but a few peculiar instances, however, these skills are similar to those utilized in other forms of precision production."

Mr. Chairman, I believe that the shift which has taken place in manufacturing techniques is of the utmost importance in any consideration of the question of whether an attempt should be made to stockpile skills for the mobilization base.

IS THERE A SHORTAGE OF CRITICAL SKILLS?

It is quite apparent that there is a growing shortage of the key scientific and engineering skills required to keep American industry in its position of world leadership. This shortage is prevalent throughout the economy, as is witnessed by the keen bidding among various industries for college engineering graduates. If the Government looks at the three jeweled watch manufacturers, or at virtually any other precision firms, it is likely to find a shortage of these key engineering skills.

However, it does not follow that the shortage can be overcome by higher tariffs or quotas. The only effective method of improving our national base of scientific and engineering talent is through direct action aimed at increasing the number and proficiency of our technical graduates. President Eisenhower has recently taken a very important step in this direction through the appointment of the National Committee for the Development of Scientists and Engineers, headed by Dr. Howard L. Bevis, president of Ohio State. This very distinguished Committee is in a position to recommend positive, constructive steps for expanding base of critical skills.

Certainly, this is the type of action which should be taken by our Government to meet this situation. Rather than curtail competition from foreign products, many of which (including watches) are of a more advanced design than their American counterpart, we must improve the skills which we in America require for national defense. In fact, history shows that the interchange of ideas which results from a free interplay of competition both on the domestic and international scene is one of the greatest stimulants toward improved technology and new inventions, many of which are of key importance to our national defense.

REACTIONS ABROAD FROM IMPORT RESTRICTIONS BY THE UNITED STATES

The recent report by this subcommittee emphasized the important fact that the United States, with its dominant economic and military position in the free world, must assume positive leadership in the effort to minimize trade barriers and to encourage a greater flow of multilateral trade among the western nations. When we take protectionist actions, the sincerity of our espousal of increased trade is questioned not only in the countries which are directly affected but throughout the free world. Certainly, such widespread discouragement and disillusionment concerning America's foreign economic policy occurred following our increase in watch tariffs.

I should like to file with the subcommittee a booklet showing typical editorials which appeared in British, French, Netherlands, Belgian, and other newspapers expressing shock and disappointment with the 50 percent watch tariff boost. You gentlemen may also be interested in a recent issue of the United Nations Economic Bulletin for Europe, which we shall also file with the subcommittee. In a discussion of export difficulties in the United States market, the Bulletin emphasizes the fact that manufacturers of other commodities have been greatly discouraged in their efforts to expand their American sales by our tariff actions on watches and bicycles. The article also points to the sharp drop in dollar earnings by the Swiss following the 50 percent boost in watch duties, and states that other European nations are facing threats of a similar curtailment in their major exports to the United States.

Clearly, the United States cannot go in both directions. We cannot continue to talk out of both sides of our mouth. We cannot urge foreign nations to lower their trade barriers and to increase their international trade and then slap them down wherever their industries happen to be successful in developing American markets.

If the United States truly believes that our national security is best guaranteed through a joint effort with our allies, we cannot adopt protectionist policies which are justified only on assumptions of economic and military isolation. This is particularly true in view of the fact that other devices are readily available which will give the United States a far greater degree of national security than the imposition of artificial trade barriers.

WHAT STEPS SHOULD BE TAKEN TO PRESERVE CRITICAL SKILLS?

The question of whether there is a shortage of skilled manpower should be approached from the standpoint of the Nation as a whole, rather than on an

industry-by-industry, or company-by-company basis. If such an examination discloses that we are in danger of having a national shortage of skilled manpower of a vital type, then it is obvious that positive steps should be taken to alleviate the shortage.

It does not make any difference what has created the shortage. It could be caused by educational deficiencies, or by a lack of economic incentive or other factors. Regardless of the cause, the answer lies in training additional manpower in vital scientific, engineering, and tool-designing skills.

Insofar as skills in the watch industry are concerned, we shall describe how the Swiss assure themselves of a steady supply of the finest horological engineers when Mr. Lazrus testifies later today. Certainly, in my opinion, there are many things which the United States Government can also do along these lines. For example:

(1) The United States should consider expanding the concept of our technical assistance program to make it a two-way street. The United States has no monopoly on scientific and engineering skills. We have much to learn from our friends abroad, including the Swiss, the Germans and many others. It is quite possible that the Swiss would be willing to share some of their horological know-how with us, in exchange for similar United States aid in other fields.

(2) Our Government should encourage the establishment of technical and engineering schools to improve skills useful in designing and in planning and constructing the complex machinery used on automatic precision production lines. So far as I know, there is not a single university in this country which teaches courses aimed at advancing horological technology.

(There are, of course, many trade schools which teach watch-repair work, but this is not the type of high-level skill which is required to make the United States industry competitive with its Swiss counterpart.)

(3) The Government should judge the desirability of each action it is considering on behalf of the domestic watch manufacturers in terms of whether or not it will lead to an improvement in their watchmaking technology. By contrast, for the past 2 years, the executive branch has been going in exactly the opposite direction by assuring the domestic watch manufacturers that the Government will intervene to make certain that they sell at least 2 million units per year regardless of their technological inefficiency. Under these circumstances, there is obviously no incentive for the domestic manufacturers to improve their operations.

(4) If the Government finds that still further assistance is required in order to keep certain vital horological skills intact, such assistance should be given in the form of a direct subsidy, rather than through the indirect device of forcing the public to pay higher prices through increased tariffs and other trade restrictions. The experience of the past 2 years has clearly demonstrated that trade barriers are an ineffective method of preserving domestic skills. As we will explain later, the 50 percent increase in tariffs has cut imports very sharply, but has resulted in a relatively small boost in domestic production. Efforts by the Government to restrict imports should be abandoned as a means of preserving the skills deemed to be vital in this industry, if necessary, funds should be allocated from the Defense budget to pay for these purposes. In this manner, the cost would be clearly visible and the results could be measured against such costs.

This concludes my presentation, Mr. Chairman. As you can see, we have divided the scope of our testimony among the three watch-importing witnesses in order to avoid duplication. Mr. Fred Cartoun, who will follow me, will discuss the trend in sales by the domestic watch industry, and whether there is any real threat that vital engineering skills will disappear. Mr. Cartoun will also explain why the domestic jeweled watch manufacturers do not enjoy a greater share of the total market, and what they could do to increase their percentage of retail sales. Finally, he will discuss the effects of the 1954 tariff increase on various segments of the watch industry.

Our third witness, Mr. Ralph Lazrus, will describe the defense-production efforts of importer-assembler firms. He will also discuss the relative cost of watch production in the United States and in Switzerland. Finally, Mr. Lazrus will discuss the methods by which the Swiss assure themselves of an adequate supply of key horological skills—methods which might be adopted in part by this country.

Thank you very much.

LET'S TAKE ANOTHER LOOK

An analysis of the ODM report on the American watch industry and subsequent Government actions

INTRODUCTION

In June 1954 an Interdepartmental Committee headed by the Office of Defense Mobilization issued a report on the essentiality to national security of the American jeweled watch industry.

The report acknowledged that the Defense Department does not consider the skills of the four American watch manufacturers to be of major importance to our military procurement program since all of the defense items manufactured by these firms can be procured from other industries or can easily be stockpiled. The Defense Department prepared a comprehensive study for the ODM Committee on the role of the four jeweled watch producers in event of total mobilization. This study, which has only recently been declassified and released to the public, concluded that so far as military needs are concerned, "no special nor preferential treatment" for the watch industry is necessary.

Yet in the face of this finding by the Defense Department, the ODM Committee concluded that these companies were essential to national security; that a minimum of 4,000 production workers should be employed by these firms; and that to achieve this purpose the Government should take any steps necessary to maintain domestic watch output at an average of not less than 2 million units per year.

Regardless of the validity of the ODM conclusion that the skills of the four watch companies are essential, there is no question that the report has been accepted as overriding Government policy on matters affecting the watch industry. Within 7 months following its issuance, the United States Government has taken a series of far-reaching actions against importers of Swiss watches. These actions have aroused great resentments both in Switzerland and in other friendly nations which view the moves as symptomatic of a United States return to higher tariffs.

Since nearly every industry can make a claim of its importance to national defense, the ODM report and subsequent administration actions can establish a precedent for spreading the cloak of protectionism over broad segments of the American economy. The matter, therefore, is of a sufficiently serious nature to warrant the consideration of those who are interested in preserving and improving America's efforts to stimulate international commerce.

The following document presents an analysis of the ODM report and subsequent Government actions, along with suggestions for a proper review leading toward corrective actions.

ORIGIN OF ODM STUDY

For many years the domestic watch manufacturers have claimed that their companies are being injured by imports and that they need additional tariff relief. These firms have made repeated appearances before the Tariff Commission and appropriate congressional committees; but in each instance the President or Congress decided that tariff action was unnecessary in view of the sales and profits records of the domestic producers and would be inappropriate in the light of the importance of maintaining good trade relations with the Swiss and other countries.

During the Korean emergency, the domestic watch manufacturers shifted their attack to emphasize their alleged essentiality to national defense, arguing that their ability to mass produce precision parts is not duplicated in any other industry. The President asked the National Security Resources Board to look into this matter, and in January 1953, NSRB reported that production and employment in the industry were sufficiently high not to jeopardize its base of skilled workers, and that no Government action was warranted.

A few months later, in July 1953, another similar study was requested by an Interdepartmental Committee on the Jeweled Watch Industry, headed by the Office of Defense Mobilization and consisting also of representatives from the Departments of Defense, Commerce, Labor and, on certain problems, State and Treasury.

At the request of ODM, the Defense Department conducted "an exhaustive study of military requirements during a 3-year mobilization period" for all types of products which would be produced by the jeweled watch industry during a wartime emergency. Similarly, the Commerce Department prepared a

report on the role which the four jeweled watch companies would fulfill in supplying products required by defense-supporting civilian industries. These two documents reached quite contradictory conclusions concerning the necessity for Government action to protect the domestic watch manufacturers.

WHAT DEFENSE DEPARTMENT TOLD ODM

The Department of Defense report on the essentiality of the domestic jeweled watch industry, which was submitted to ODM on April 26, 1954, was described as "one of the most complete studies made of end item full mobilization requirements for a single industry."

C. S. Thomas, Assistant Secretary of Defense in charge of supply and logistics, said: "In its preparation and review, the report has had the benefit of the most thorough examination by technical experts of the three military departments. The conclusions have been reached after careful consideration by cognizant officials of the Department."

A special Defense Department task group was established to determine the types of data required from the military departments. The study covered mobilization requirements for jeweled movements, timing mechanisms for the ammunition program, the interrelationship of subcontracting and parts production for other manufacturers of military equipment. Both horological and nonhorological firms producing the same types of products were considered, and every effort was made—through field inspection, consultation with technical experts, cross-checking of strategic plans, etc.—to assure that the data and conclusions were as complete and factual as humanly possible.

This is what the Defense Department found:

(1) "The timing devices used in the ammunition program are produced by the jeweled watch manufacturers, nonjeweled watch and clock manufacturers, and others completely outside the horological group. There does not appear to be any part of the manufacture or assembly of mechanical time fuzes that is peculiar only to the jeweled watch industry."

(2) "Only 11 percent of the total mobilization requirement (for all timing devices) planned with industry, is with the jeweled watch industry."

(3) "There is in no way a unique requirement for it (the jeweled watch industry) in the fuze program." Many manufacturers outside the jeweled watch industry "are capable of producing mechanical time fuzes and rear fitting safety devices. Every part is being produced by some company other than a jeweled watch firm."

(4) Mobilization requirements of the Defense Department for jeweled watches and chronometers are "nominal," far below World War II levels. The Department believes that sufficient production capacity "will remain and can be used for current procurement needs and be the basis for supplying the mobilization requirements. If in the future, it should become apparent that sufficient capacity will not be maintained and available, the Defense Department can then procure all of its requirements of jeweled movements for the mobilization reserve"—i. e., the requirements for jeweled movements are so small that, if necessary, they could easily be stockpiled.

(5) The needs of the Defense Department for industrial capacity clearly demonstrate that "no special nor preferential treatment for the jeweled watch industry is essential."

It is significant that these official views of the Defense Department were suppressed under a secret classification for nearly a year. It was not until March 22, 1955, that the Department made this report available to the public.

Meanwhile, the Government had taken a series of far-reaching actions to curtail watch imports, stating on each occasion that the moves had been motivated largely by national defense considerations. The public was thus misled into the belief that the Department of Defense considered it necessary for the Government to take such actions to protect the four domestic jeweled watch manufacturers. Actually, as revealed in the Defense Department report, quite the opposite was true.

CONTRADICTORY COMMERCE DEPARTMENT CONCLUSIONS

The Commerce Department also prepared a study for the ODM Committee, dealing with essential civilian requirements for products supplied by the jeweled watch industry. This study emphasized the civilian shortage of certain watch products during World War II and gave such examples as the fact that nurses

were forced to use watches with conventional second hands rather than sweep-second hands; miners were forced to use nonjeweled pocket watches; and many industries were unable to get as many jeweled timers as they desired. The Commerce study estimated that civilian demand for these products would be greater in a future emergency. (These views are found on pp. 17-20 of the ODM report.)

The Commerce Department therefore concluded that "a minimum of 3 million jeweled timepieces per year" should be produced in order to assure "essential non-military requirements" under wartime conditions.

WHAT THE ODM REPORT FOUND

The ODM report, leaning heavily on the Commerce Department recommendations—and rejecting the Defense Department study—found that the skills of the jeweled watch industry were essential to national defense, that it was important to keep "about 4,000 production workers" employed at the plants of the domestic watch producers, and that, in order to keep these men occupied, the Government should take any steps necessary to maintain domestic jeweled watch output "at not less than an average of 2 million units per year."

The ODM report did not make recommendations concerning the specific types of action which would be most appropriate for the Government to take in support of the domestic watchmakers. It discussed several possibilities—including placement of defense orders, stockpiling, tariff relief, quotas, subsidies, and Government-supported horological research and training—but merely pointed to some of the advantages and disadvantages of each.

SUBSEQUENT GOVERNMENT ACTIONS RESULTING FROM ODM REPORT

Within 7 months following publication of the ODM report, the Government has taken a series of far-reaching and drastic actions against the importers of Swiss watches. These included: (1) a 50 percent boost in watch duties; (2) an anti-trust action filed against the Swiss watch industry in which the Justice Department asked, in effect, that imports of Swiss watches be stopped unless the Swiss change their governmental regulations controlling the industry; (3) a change in longstanding customs regulations which has the effect of virtually tripling the tariffs on certain types of watch imports, and (4) establishment of a new Interagency Advisory Committee, headed by ODM, to see what further steps "should be taken to maintain the domestic watch industry in a healthy condition."

While each of these actions appears unrelated, there is no doubt that they are all motivated, in large part, by a desire to strengthen the competitive position of the domestic manufacturers. The administration, in other words, has adopted the ODM report as overriding policy concerning matters affecting the watch industry.

WHAT IS WRONG WITH THE ODM REPORT?

In view of the fact that the conclusions of the ODM report have been accepted throughout the executive branch, and have become the basis of a series of protectionist actions, it becomes important to examine the true significance and validity of its findings. In this regard, there are several major points which should be kept in mind:

(1) The ODM report concluded that the domestic watch manufacturers are essential to the national security despite a thorough Defense Department study which reached quite different conclusions.

The Defense Department was aware of the fact that, while the four domestic watch manufacturers unquestionably produced great quantities of fuzes and other ordnance items during World War II, dozens of other companies—both within and outside the horological industry—produced the same types of military equipment, requiring identical precision, and in at least equal quantities.

Some of the great names in American industry—including Eastman Kodak, Bendix Aviation, Thomas A. Edison Corp., National Cash Register, International Business Machines, Singer Sewing Machine, Underwood Elliott Fisher, and many, many others—were engaged in manufacture of military items of the same character as those obtained from the four-jeweled watch firms. These companies, of course, employ tens of thousands of skilled workers who are

readily available for defense work and whose records show they are capable of mass-producing the finest, most precise ordnance equipment. The same thing is true of the numerous firms which manufacture nonjeweled watches and clocks—such as the Ingraham Co., New Haven Clock, General Time, General Electric, United States Time, Chelsea Clock, Borg Products, William L. Gilbert Clock, Herschede Hall Clock, Lux Clock Mfg., and Sessions Clock.

Similarly, several watch importer-assembly companies enjoy outstanding records of defense production, having furnished the same types of defense items as the four-jeweled watch manufactures. Benrus Watch Co. and Gruen Watch Co. are notable examples of these military suppliers.

Of course, the Defense Department was also aware of the fact that the type of ordnance equipment needed today is far different from the requirements of World War II. Electronics equipment, for example, is replacing mechanical time fuzes in modern weapons, so that the machinery and skills of the domestic watchmakers are not necessarily as directly applicable to military production as was formerly the case.

The Defense Department study underscores the fact that the ODM conclusion was not based on military necessity, but rested largely on the Commerce Department finding that there would be a civilian shortage of watches in event of all-out war. Now, it is undoubtedly true that some nurses were forced to use watches without sweep-second hands and that some miners had to contend with ordinary pocket watches during the height of World War II—and that similar shortages might occur in event of another war. However, this is hardly a great privation in the midst of a national emergency.

Nor does this appear to be adequate grounds for singling out the domestic watch manufacturers as vital to America's national security, and for throwing the full weight of the United States Government behind four companies to the detriment of many other American firms who are their competitors. Yet this is precisely what has occurred.

(2) The ODM report based its conclusions on Commerce Department projections that are highly unrealistic and upon an estimate of mobilization requirements that went far beyond truly essential needs.

Perhaps the best indication of fallacies inherent in the Commerce Department study is found in its conclusion that the Government must assure an output by the four domestic firms of not less than 3 million units per year. The fact is that in only 2 years in the entire history of the American watch industry has production reached this level which the Commerce Department says the Government should establish as a minimum.

It is also interesting to note that the Commerce Department recommended this ridiculously high, Government-guaranteed minimum watch production in the face of the Defense Department finding that military needs for jeweled timepieces in a future emergency would be only one-fourth as large as during World War II.

(3) The ODM report made a serious error when it recommended that the Government should maintain domestic watch production at an average not below 2 million units. There are other equally effective methods of preserving the skills and precision machinery of the domestic manufacturers.

The report states that the objective of Government policy should be to maintain employment at the four domestic watch manufacturers at a level not below 4,000 production workers. It does not follow, however, that stable employment of these workers can be achieved only through maintenance of watch output at an average level not below 2 million units per year. In making this recommendation, the ODM report ignored the possibility that these production workers could be kept occupied, making full use of their skills through placement of defense contracts requiring precision techniques.

While it is true that this would not help the sale of watches by these firms, it would keep them in healthy financial condition and would preserve their skilled work force and precision machines—which would fully meet ODM's objectives.

Even assuming that under this type of Government assistance the domestic watchmakers might cease manufacturing watch movements—which the ODM report, itself, said "does not appear likely" (p. 7)—it should be remembered that the Defense Department has stated that its requirements for jeweled movements during full mobilization would be nominal and could be easily stockpiled.

There is no justifiable reason, therefore, why the ODM report went beyond its recommendation that the Government assure employment of 4,000 production workers and added its further recommendation concerning the number of watches that must be produced, supposedly in order to achieve this employment goal. Markets obviously had to be found for the domestic output; thus, the inevitable result of this ODM recommendation was a vigorous and consistent attack on imports. The recommendation that domestic production must be maintained above 2 million units, in effect, converted the ODM report from a document concerned with preserving domestic skills into an instrument for tariff protection.

(4) The ODM report contains strange inconsistencies in its discussion of the possibility of preserving essential skills through placement of defense contracts.

The report avoids specific recommendations concerning the type of Government assistance which should be given the four domestic watchmakers; but in discussing the possibility that these firms might receive preference in the award of defense contracts, the report makes the following rather peculiar comment (p. 25):

"* * * This might result in concentration of procurement on the least efficient producers and would probably result in high average costs. Furthermore, this action would assist the profit and employment levels of the companies but would not, in itself, lead to increased production of jeweled movements and the utilization of watchmaking skills."

This statement seems to conflict sharply with the ODM finding that these companies are essential because they possess unique skills which are vital to the defense effort. If the four domestic manufacturers are the "least efficient producers," it seems strange that other sections of the ODM report would emphasize their talents for mass production of precision items. At any rate, the Defense Department has announced a policy of paying higher costs, in order to broaden the defense production base.

Moreover, if the same types of skills and the same machines are used in defense production as in manufacturing watches, why wouldn't production of ordnance items "lead to * * * the utilization of watchmaking skills?" In this connection, it should be understood that the four watch manufacturers do not employ merely 4,000 production workers; they employ over 9,000—a majority of whom are engaged in defense production. If the ODM report was truly concerned with preserving skills necessary for national defense, why did it look only at the 4,000 workers making jeweled watches and ignore their 5,000 companions engaged in military production?

WHY GOVERNMENT ACTIONS, BASED ON ODM REPORT, ARE UNWARRANTED

It is apparent that the ODM report is subject to fundamental criticism for its failure to give weight to the Defense Department findings. However, even assuming—for the sake of discussion—that ODM was justified in finding that the skills of the four domestic manufacturers are essential to national defense, the actions taken by the Government against watch importers during the past 7 months were neither necessary nor in the overall national interest.

In this connection, the following points should be considered:

(A) It is ridiculous for the Government to protect the skills of four companies through techniques which injure the equally skilled workers of other American watch companies.

It must be remembered that while ODM limited its study to four companies—Bulova, Hamilton, Elgin, and Waltham—the report stated clearly (p. 2) that: "limitation of this study to jeweled watch manufacture should not be construed to imply that other segments of the horological industry are necessarily any less essential to national security."

The fact is that other branches of the horological industry have records of defense production which compare most favorably with those of the four jeweled watch manufacturers.

For example, many American watch importer-assembly firms received the highest commendations for their production of ordnance items during World War II and Korea. Benrus Watch Co.—an American firm which imports Swiss movements but maintains United States plants for manufacture of cases and bracelets and for watch assembly, adjustment and timing—produced the same types of precision military equipment as the four domestic watchmakers, in similar quantities, and with at least equal quality and economy. The same thing is true of Gruen Watch Co., and other importer-assembly firms.

The objective of the ODM report was to preserve a production force of 4,000 workers—a large proportion of whom, incidentally, do not possess a high degree of precision skills. At Benrus alone there are approximately 1,000 employees, in this country, including hundreds of highly trained men and women who possess virtually the same skills as those of the four domestic producers. Scores of other importer-assembling companies also maintain highly skilled work forces which are readily available for defense production.

If it is essential to protect the skills of the four domestic companies, surely this should not be done through techniques which directly injure equally skilled workers employed by other branches of the horological industry, such as the importer-assemblers. Yet this is precisely what the Government has done by using the ODM report as the justification for attacks on Swiss watch importers.

(B) As a result of the ODM report, the Administration acted too quickly and in the wrong directions.

During the past 7 months, various executive departments have seized upon the ODM recommendation that domestic watch production "should be maintained at not less than an average of 2 million units per year," and have used this to justify a series of important moves against importers. In fact, the Government did not even wait for the "average" domestic output to drop below 2 million watches. For 7 years prior to 1954, United States production was substantially above this level. Yet, when the industry estimated that 1954 output might be down to 1,700,000 units, the administration eagerly jumped to its rescue and invoked the escape clause in the Swiss Trade Agreement.

This move and subsequent actions, although hurting importers, did not guarantee consumer demand for domestically produced watches. It did not improve the manufacturing efficiency of the four United States producers, nor did it improve their merchandising techniques (which constitute the true source of their competitive difficulties). The principal results of the actions were to engender the deepest resentments against the United States in Switzerland, antagonize many of our friends in other trading nations, and force 160 million Americans to pay higher prices.

(C) The extreme measures which the Government has taken to aid the four domestic manufacturers, and the likelihood of additional actions in the future, are removing the competitive incentive for these companies and might well impair their ability to contribute to the defense effort.

The American watch manufacturers are hard pressed to compete with Swiss imports primarily because they do not have the management skills, the manufacturing know-how, the engineering techniques, and the production efficiency of the Swiss. In the interest of national security, it would seem that the best way to help these companies would be to encourage them to improve their operations, to invest in horological research and in new plants and equipment capable of competing with Swiss efficiency and design.

After all, many other industries important to national defense—such as electronics, automotive, aircraft—do not seek or require special Government protection because they have had the vision to improve their operations and the courage to invest substantial sums to assure their future efficiency. Through the years, this foresight has been lacking from the four domestic watch manufacturers, and the present plethora of Government assistance will merely perpetuate their lack of competitive drive.

By assuring these companies very healthy profits for their present relatively inefficient operations, the Government is seriously disrupting competitive relationships within the American watch industry, but is certainly not aiding the efficiency or the technical ability of the four watch manufacturers to engage in defense production. Quite the opposite.

(D) Government actions are jeopardizing the willingness of the Swiss to continue furnishing the American watchmakers and other firms with critical machinery and technical know-how that is most valuable to the defense effort.

It should be remembered that a very substantial part of the finest precision machinery employed by the four watchmakers on defense production was furnished to them by the Swiss, who have also made many important contributions in the form of technical assistance and engineering guidance. The willingness of the Swiss to continue this type of help—which has been furnished not only to the American horological industry, but to other precision manufacturers—is being seriously endangered by United States actions against watch imports.

(E) The ODM report considered a very narrow problem—essentially of four companies—and should not be adopted as overriding national policy without being subjected to broader criteria.

Government actions aimed at curtailing imports strike at the heart of fundamental, long-established United States foreign economic policies. It is a mistake for the Government to assume that a report on the essential skills of four companies must automatically take precedence over these policies.

Yet, that is precisely what has happened. When the problem is discussed with the State Department and other agencies entrusted with preserving United States foreign relations, they, in effect, throw up their hands and say: "There is nothing we can do. The Government's policy on watches is expressed in the ODM report."

It must be remembered that ODM merely considered whether or not the skills of four companies were essential to national defense and whether the Government should take action to preserve these skills. It did not consider questions such as these:

"Is preservation of the skills of the four domestic watchmakers more essential to the United States than the undermining of our foreign economic policy through unilateral action to abrogate a trade treaty?"; or

"Is preservation of these skills more essential than the continued cooperation of the Swiss who have furnished this country with many critical machines and much technical know-how in precision manufacture vital to national defense?"; or

"Is preservation of these skills more important to the defense of the Western Nations than adoption of policies which encourage the Swiss to tighten their trade relations with Iron Curtain countries by curtailing their established markets?"

Before the United States Government decides to nullify a trade agreement, these are the types of question that should be considered by highest authorities. Moves involving delicate international relations should not be taken merely on the basis of a narrow report which says that 4,000 workers should be kept employed—particularly when there are excellent alternative actions.

(F) Use of the ODM report as a basis for restrictive actions against Swiss watch imports sets a precedent which is contrary to the best interest of the United States.

The fundamental question of whether to use tariff protection or other trade barriers as a method of assuring supply sources for the military has been studied by many Presidential commissions—including the Bell Committee, the Paley Commission, and the Randall Commission. While cognizant of the importance of maintaining the production base of a critical item or the availability of raw materials for national defense each of these groups decided that reliance upon trade restrictions was not a sound method of achieving this objective.

There are many disadvantages in resorting to import restrictions to help manufacturers who may be producing items for defense:

(1) Since nearly every industry can make a claim for its importance to national defense during all-out mobilization, the United States would be forced to spread the cloak of protectionism over virtually the entire American productive economy. Not only would this have the effect of nullifying the objectives of the reciprocal trade program, but it would induce other governments to use national defense as a justification for restrictions on imports from the United States. Retaliatory steps to safeguard their own vital industries would be quickly adopted by friendly nations, with self-sufficiency the future goal of international relations.

(2) Resort to trade restrictions for national defense purposes penalizes all consumers by raising prices and narrowing the choice of products, thereby constituting a great burden on the entire national economy.

(3) Reliance on protection by American industries producing goods for the military inhibits research and development, and removes an important incentive for adoption of new techniques and improvement of production efficiency—precisely in those fields which can be helped most by the spur of competition from imports.

(4) Acceptance of the concept of United States self-sufficiency in the production of needed materials ignores the fact that it is important for our allies to maintain the strength of their industries which can be converted to the production of defense goods.

(5) United States trade policy should be based on the broadest national interest, rather than the interests of any small group of producers which comes into

competition from imports. It is impossible for the United States to be indifferent to the effects of its trade policy on friendly countries whose strength contributes to common defense and security of the free world.

(G) Rather than attack importers, the Government should have used direct aids to the domestic manufacturers.

The ODM report listed several types of direct governmental assistance to the four domestic watchmakers—including priority in procurement, subsidies, and technical research—which have substantial advantages, from the standpoint of the overall national interest, compared with the attacks on imports which have been launched by the Government.

Preservation of an essential industry through direct assistance has the further merit that the costs are readily visible and can be included in the defense budget and regarded as part of national defense expenditures. By following this route, and avoiding attacks on imports, the Government would have been accepting the advice of specially appointed advisory groups which have studied this problem at the specific request of the President.

CONCLUSIONS

(1) The Defense Department conducted a thorough study which found that neither the skills nor the facilities of the four domestic jeweled-watch producers are essential to military procurement. It recommended against preferential treatment for this industry.

(2) The ODM finding—that the skills of domestic watchmakers are essential to national defense—is not based on military requirements, but on an obscure estimate of essential civilian needs furnished by the Commerce Department. There are indications that the Commerce study greatly exaggerated the needs.

(3) Even assuming that these skills are essential, the ODM report was in error in recommending that the only way to preserve them is to produce an average of not less than 2 million domestic watches annually. The skills could be preserved by utilizing the workers and the machines on precision defense production.

(4) The ODM report has been accepted as overriding Government policy on matters affecting the watch industry, although it actually considered only a very narrow segment of a very broad problem.

(a) The Government has used the ODM report as justification for a series of attacks on watch importer-assembler firms. Some of these American importing firms have records of defense production which are at least equal to those of the four domestic watchmakers; their workers possess virtually identical skills, and are equally available for military production.

(b) While the Government has taken important actions affecting United States foreign economic policy on the basis of the ODM report, the report considered only the essentiality of four American companies and was not concerned with the numerous major problems that are raised by moves to curtail imports. These problems include possible thwarting of our efforts to encourage multilateral trade, loss of overseas markets for United States agriculture and industry, encouragement of the Swiss to trade with Iron Curtain countries since they are deprived of normal markets, injury to the defense of the United States and other western nations through refusal of the Swiss to continue furnishing critical machinery and technical know-how valuable to production of precision ordnance items, interference with competitive relationships within the United States, and higher prices paid by American consumers.

(5) The Government should have used alternative methods of assisting the four domestic watchmakers, involving direct aid, instead of attacking importers. This would have been a more positive method of preserving their skills and would have been in accord with recommendations by numerous Government commissions which have studied this matter.

(6) The Government actions which have been taken, and those which apparently are contemplated, are so far reaching as to minimize the incentive of the four domestic watchmakers to improve their operations. Government assistance to essential domestic industries should be carefully weighed against the important role played by competition in encouraging improvement of technical skills and manufacturing efficiency. So far as the four domestic watch manufacturers are concerned, this is the only permanent key to minimizing their economic difficulties and maximizing their ability to aid the defense effort.

RECOMMENDATIONS

(1) The ODM report should be reviewed, giving proper weight to the findings of the Defense Department. The ODM recommendation concerning the necessity of producing an average of 2 million domestic watches per year should be examined in the light of the fact that it has perverted the report into a protectionist instrument. The new evaluation should consider the essentiality, and the potential contribution to defense, of all segments of the American horological industry.

(2) The actions taken by the executive branch against Swiss watch importers should be reviewed against broader criteria than those applied in the ODM report. This review should be conducted at highest governmental levels, perhaps by the newly appointed Council on Foreign Economic Policy.

(3) If these reviews verify the points made in this memorandum—that the ODM report contains serious fallacies and that recent Government actions to aid the four domestic watchmakers are not in the overall national best interest—these situations should be corrected promptly and the present Government trend toward restricting watch imports should be reversed.

ASSISTANT SECRETARY OF DEFENSE,
Washington D. C., April 29, 1954.

HON. ARTHUR S. FLEMMING,
Director, Office of Defense Mobilization,
Washington D. C.

DEAR DR. FLEMMING: The enclosed report represents the position of the Department of Defense on the essentiality of the domestic jeweled watch manufacturing industry. In its preparation and review, the report has had the benefit of the most thorough examination by technical experts of the three military departments. The conclusions have been reached after careful consideration by cognizant officials of the Department.

We fully appreciate the importance of the report to industry. Therefore, it has been prepared in such a fashion that you may, if you wish, furnish copies of the text, without the enclosures, to properly cleared officials of the companies and the union concerned, when the President's Committee has concluded its review of the problem. In addition, if you decide there is a need for a news release to the general public on the major conclusions, my staff will make themselves available to assist in the preparation of a press release for this purpose.

Twenty numbered copies of this report have been transmitted under separate cover to your Mr. John Hilliard, Deputy Assistant Director for Manpower and Personnel. He will be responsible for distribution of the report to the members of the committee.

Sincerely yours,

C. S. THOMAS.

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE

SUPPLY AND LOGISTICS

Washington, D. C.

DEPARTMENT OF DEFENSE REPORT ON THE ESSENTIALITY OF THE JEWELED-WATCH
INDUSTRY

(The text contained in the original April 26, 1954, report has been declassified as of February 28, 1955, except for paragraph III. B. 2. A summary declassified paragraph has been substituted in this report for the original paragraph. All enclosures to the report retain their original classification and will be published, together with the original paragraph III. B. 2., in a separate classified supplement for the benefit of staff having need of these data.)

The classified report, Office of the Assistant Secretary of Defense (Supply and Logistics) dated April 26, 1954, entitled "Department of Defense Report on the Essentiality of the Jeweled-Watch Industry," is rescinded and will be destroyed in accordance with the security regulations of your department or agency.

April 26, 1954 (Adjusted for declassification February 28, 1955)

I. INTRODUCTION

The President of the United States requested the Director, Office of Defense Mobilization, to establish a current Government position on the essentiality of the domestic jeweled-watch industry to the Nation for purpose of defense. The Office of Defense Mobilization reactivated the interdepartmental committee under the chairmanship of the Assistant Director of Defense Mobilization. This includes representatives of the Departments of State, Treasury, Defense, Commerce, and Labor. The Department of Defense was asked to evaluate its need for the output of the industry for the purpose of producing military equipment to support a mobilization. The domestic jeweled-watch manufacturing industry is composed of Bulova Watch Co., Elgin National Watch Co., Hamilton Watch Co., and Waltham Watch Co.

Since almost any type of industrial capacity for manufacturing defense products is generally essential in an all-out mobilization effort, this study, therefore, had to consider the degree of the essentiality of this industry to defense production.

II. DEPARTMENT OF DEFENSE PROCEDURE

A Department of Defense task group, composed of representative of the military departments and the Offices of the Assistant Secretaries of Defense (Supply and Logistics) and (Manpower and Personnel) was established. This task group formulated the methods of approach to the problem; determined the types and scope of the data required from the military departments; reviewed and evaluated these data; conducted as Department of Defense teams, field surveys of industrial facilities; and served generally as a focal point for coordinating the activities of this study.

In order to make the study as complete as possible, coverage includes mobilization requirements for jeweled movements, timing mechanisms for the ammunition program, and the interrelationship of subcontracting and parts production for other manufacturers of military equipment. The horological industry and nonhorological firms producing the same types of products were considered. Attention has been given to current production and inventories (enclosure 1). All of the jeweled-watch companies, and 27 other manufacturers producing military equipment and procuring parts from the jeweled-watch industry, were visited by Department of Defense staff in the course of this study (enclosure 2). Order boards were obtained from the jeweled-watch companies and staff members were sent to the prime and other contractors to study the dependency of these firms upon the jeweled-watch companies.

Regarding research and development work, it was found that the jeweled-watch industry as a whole participated relatively little in this Defense Department activity, though they are capable of doing more and appear to be proceeding in that direction.

III. MOBILIZATION REQUIREMENTS AND ANALYSIS

No effort has been spared in the task group's review of the data for this report. Mobilization requirements data were computed by the military departments and then carefully checked and rechecked by separate staff elements of the Assistant Secretary of Defense (Supply and Logistics) with staff of the military departments. The Assistant Secretary of Defense (Supply and Logistics) and key staff held a final review with technical experts of the military departments to insure that the data were accurate and the report factual. Mobilization requirements of timing devices for the ammunition program were computed from overall Department of Defense strategic guidance and were checked against similar requirements developed from departmental plans, to be certain that they were of the proper order of magnitude. Differences did not exceed 10 percent of the total requirements.

A. Jeweled movements

1. *Manufacture.*—It is clear that the jeweled-watch industry affords some of the finest manufacturing facilities and technical abilities in the country for small, close tolerance work. The tool and die making facilities for small parts

are perhaps unsurpassed. The fabrication of parts, together with technical knowledge of mechanical transmission of movement within precise and steady time limits and confined spaces, is the basis of their ability to manufacture jeweled movements.

2. *Requirements.*—Enclosure 3 represents the Department of Defense combined Army, Navy and Air Force mobilization requirements of jeweled movements, including watches, clocks, and chronometers. For the 3-year mobilization period, a total of 747,670¹ jeweled movements are required. This figure contrasts sharply with peak 3-year World War II deliveries, when over 3 million jeweled movements in the form of watches, clocks, and chronometers were delivered to the military, excluding post exchanges and ships service stores. Three major policies of the armed services are responsible for the reduced requirement. First, issue rates to troops have been drastically reduced because of World War II experience of overprocurement and unnecessary issue of watches. Second, a nonjeweled watch has been developed by a nonjeweled watch manufacturer and accepted by the Army to replace the 7-jewel watch requirement (grade III) of about 1 million movements. Total production for the military of wrist watches and other jeweled movements in World War II may be noted in enclosure 7. Reference to the Department of the Army position on nonjeweled watches is noted in Army Ordnance Technical Committee actions of July 17, 1952, (OCM 34354). Obviously, there would be a corresponding substantial increased requirement for nonjeweled watches, the suppliers for which could include the four-jeweled watch producers. Third, one service has combined the elapsed-time and the standard clock into one time piece in order to conserve space on the instrument panel, thereby reducing the requirement sharply.

In the jeweled watch category alone, only 244,845¹ are shown as required for the 3-year period. The jeweled watch requirements represent procurement by the Department of Defense for military needs only. It does not include watches nor chronometers purchased by military personnel at post exchanges and ships stores for personal use and gifts.

The Department of the Navy advises that it has sizable stocks of ship's chronometers on hand. Since these chronometers are generally not consumed or replaced, but are in a revolving pool to which they are returned for overhaul and reissue, there is a lessened requirement for these items from new production.

B. Mechanical time fuzes and rear fitting safety devices

1. *Manufacture.*—The timing devices used in the ammunition program are produced by the jeweled watch manufacturers, nonjeweled watch and clock manufacturers, and others completely outside the horological group. There does not appear to be any part of the manufacturer or assembly of mechanical time fuzes that is peculiar only to the jeweled watch industry.

2. *Requirements.*²—(NOTE.—In order that this report may be made available to the public, this classified paragraph has been revised and summarized as follows (February 28, 1955):) Over 51 percent of the mobilization requirements for all timing devices used in the ammunition program have been scheduled with industry under the production allocation planning program. Only 11 percent of the total mobilization requirement planned with industry is with the jeweled watch industry. Forty percent is with the balance of the horological group and the nonhorological firms. Many proven World War II producers of timing mechanisms have not been scheduled as yet.

C. Subcontracting within the jeweled watch industry

Subcontracting in the mechanical time fuze programs (including the rear fitting safety devices) is of considerable magnitude at the present time, and in the event of mobilization would substantially increase. The order boards of the four domestic producers of jeweled watches were obtained and carefully reviewed for the period covering the outbreak of hostilities in Korea to mid-1953. The jeweled watch industry provided substantial amounts of defense related parts to approximately 100 contractors. Survey teams visited 27 of these plants to interview management on the degree of dependency of that company on the jeweled watch industry as a source of supply for its military end item production.

¹ Further use of the nonjeweled watch may reduce this requirement by 79,391 movements.

² The figures in this section are related by percentages to the total number of timing mechanisms used in the ammunition program. The actual figures are included in enclosures 4, 5, and 6, but not here, so that this text can eventually be given to selected representatives of the industry.

These survey reports indicate that there is no particular item or product which is not being made or procured outside of the jeweled watch industry. In most cases, the reasons given for purchasing parts or products from the jeweled watch manufacturers were that the watch companies represented an excellent and dependable existing source with favorable cost relationship. Many contractors indicated that they could produce the parts which they were procuring from the watch industry if necessary, but since the facilities of the watch manufacturers have been available to date, there has been no incentive to investigate or pursue the matter further.

If it were desirable to single out one item in the mechanical time fuze program for which the jeweled watch industry is most insistent that it qualifies as a single source producer, it would be the escapement spring used in most types of mechanical time fuze mechanisms. This spring is closely related to the hair and main springs used in watches. There is a certain amount of secrecy surrounding the production of the alloy used in the spring itself, together with the manufacturing processes employed in actually rolling and producing the part. However, sources outside the jeweled watch industry at the present time have produced this part. It may be generally stated that the balance of the components, including the pinions, gears, and plates, are readily within the production capabilities of most of the facilities engaged in clock or watch manufacturing and many instrument manufacturers. Sources such as Eastman Kodak, King-Seeley, or Eclipse Machine have consistently produced satisfactory mechanical time fuzes for the Department of Defense.

IV. CONCLUSIONS

While the jeweled watch facilities visited clearly represent excellent and desirable capacity, the needs of the Department of Defense for industrial capacity clearly demonstrate that no special nor preferential treatment for the industry is necessary. It is true that no other industry can show conclusively its ability to produce jeweled watches or chronometers, but these requirements to the Department of Defense are nominal. The Defense Department can, therefore, at this time, reasonably assume that sufficient capacity will remain and can be used for current procurement needs and be the basis for supplying the mobilization requirements. If in the future it should become apparent that sufficient capacity will not be maintained and available, the Defense Department can then procure all of its requirements of jeweled movements for the mobilization reserve.

From the list of planned producers and current production sources, it is apparent that manufacturers outside the jeweled watch industry, or even the horological group, are capable of producing the mechanical time fuzes and rear fitting safety devices. Every part is being produced by some company other than a jeweled watch firm. Therefore, while the jeweled watch industry constitutes unusual ability, there is in no way a unique requirement for it in the fuze program.

The requirement for the timing mechanism in the event of mobilization is a large one. While other companies unquestionably can meet the demand, the jeweled watch industry could also be used if it were available during a period of mobilization.

WARREN WEBSTER, Jr.,

Director of Procurement and Production Policies.

(The original classified report, Office of the Assistant Secretary of Defense (Supply and Logistics) dated April 26, 1954, entitled: "Department of Defense Report on the Essentiality of the Jeweled Watch Industry," is rescinded and will be destroyed in accordance with the security regulations of your department or agency.)

ENCLOSURE 2

COMPANIES VISITED BY DEFENSE TEAMS

(In addition to the Four Jeweled Watch Manufacturers)

Allied Control Co., Inc., New York, N. Y.

Aviation Engineering division, Avien-Knickerbocker, Inc., Woodside, Long Island, N. Y.

The Liquidometer Corp., Long Island City, N. Y.

Sperry Gyroscope Co., division of the Sperry Corp., Great Neck, Long Island, N. Y.

Thomas A. Edison, Inc., West Orange, N. J.

Eclipse Pioneer division, Bendix Aviation Corp., Teterboro, N. J.

Utica division, Bendix Aviation Corp., Utica, N. Y.

Eclipse Machine division, Bendix Aviation Corp., Elmira, N. Y.

Eastman Kodak Co., Rochester, N. Y.

Freiz Instrument division, Bendix Aviation Corp., Baltimore, Md.

Frankford Arsenal, Philadelphia, Pa.

United States Time Corp., Waterbury, Conn.

The E. Ingraham Co., Bristol, Conn.

The Raytheon Manufacturing Co., Waltham, Mass.

Howard Clock Products, Inc., Waltham, Mass.

Farrington Manufacturing Co., Boston, Mass.

National Pneumatic Co., Inc., Boston, Mass.

Marine Compass Co., Pembroke, Mass.

Meter and instrument department, General Electric Co., Lynn, Mass.

Chelsea Clock Co., Chelsea, Mass.

The Gruen Watch Co., Cincinnati, Ohio

King-Seeley Corp., Ann Arbor, Mich.

A-C Spark Plug division, General Motors Corp., Flint, Mich.

F. L. Jacobs Co., (ASPO), Detroit, Mich.

The Borg Corp., Delavan, Wis.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Westclox division, General Time Instruments Corp., La Salle, Ill.

ENCLOSURE 7

Number of precision timepieces produced and delivered by the domestic jeweled watch movement industry¹ during World War II²

Type of timepiece	Jewels	To Army, Navy, and Air Force	Direct to industry by WPB allotment	To Allies direct and lend-lease	Total
Marine chronometers.....	21	9,889			9,889
Deck watches.....	22	8,082		343	8,435
Chronometer watches.....	21	22,187	330	429	22,946
Master navigation watches.....	22-23	129,558		10,336	139,894
Railroad watches.....	21-23	51,658	123,286		174,944
Chronograph watches.....	15-19	210,892		135	211,027
Comparing watches.....	17	37,209	55	4,087	41,351
Pocket watches.....	17	128,238			128,238
Do.....	9	54,420	500	62,893	117,813
Stop watches.....	7-9	197,368	14,409	60,868	272,645
Wrist watches.....	17	497,097		3,000	500,097
Wrist watches, hack.....	16	745,010	2,237	12,052	759,299
Do.....	15-16	409,008	1,000		410,008
Do.....	7-9	265,445	110	1,000	266,555
Elapsed time clocks.....	21	30,084			30,084
Marine clocks.....	11	29,960			29,960
Aircraft clocks.....	15	141,169	3,184	2,006	146,359
Do.....	7-9	161,183	8,623	3,372	173,178
Aircraft and tank clocks.....	7-9	264,021	19,331	1,875	285,227
Gun camera timers.....			10,874		10,874
Special timers.....		4,168	6,071		10,239
Total timepieces.....		3,396,656	190,010	162,396	3,749,062
Marine clock escapements.....		214,406			214,406
Special escapements.....			62,574		62,574

¹ Bulova Watch Co., Elgin National Watch Co., Hamilton Watch Co., Waltham Watch Co.

² Covers 5-year period 1941-45.

Source: National Production Authority, July 7, 1953 (revised April 8, 1954).

DEPARTMENT OF COMMERCE POSITION ON DEFENSE SUPPORTING AND ESSENTIAL CIVILIAN REQUIREMENTS FOR PRODUCTS FROM THE JEWELLED WATCH INDUSTRY

June 22, 1954

In order to arrive at a requirement for jeweled timepieces for essential civilian and war supporting use in time of national emergency, the Department of Commerce (1) considered the consumption of jeweled timepieces for non-

military uses during World War II and (2) estimated the probable use of such timepieces in a future emergency. The requirements estimate of that Department were based upon the following findings:

WORLD WAR II EXPERIENCE

Early in World War II, it became evident that military requirements for jeweled timepieces exceeded the capacity of the domestic jeweled watch industry, and it was determined by the War Production Board to use imported watches to meet part of the military and all essential civilian requirements. Although nearly 24 million jeweled watches and movements were imported during the period 1942-July 1945, the shortage of precision timepieces for essential civilian use was a chronic problem throughout the war.

Numerous examples can be cited to indicate the hardships and frequent production losses engendered by lack of timing devices. Military demand for jeweled timers was so great that few could be released for industrial purposes. According to WPB records, "Many of the large industries in this country who were converted to 100 percent warwork were severely handicapped by the lack of these timers * * * in June of 1944 several thousand units were produced by one of the jeweled watch factories. This helped the situation materially but the situation quickly changed * * * and in July they were again busy making these items for the Air Corps. During the fall of 1944 the situation again became critical and it was necessary for us to secure a setback on a Navy contract to provide 250 units for release for industrial purposes during the month of December."

On February 10, 1943, War Production Board Release No. 2496 appealed to the general public for the loan or sale to the Government of railroad watches. Limitation order 175 was issued in August 1942, and in each succeeding reporting period, the backlog of unfilled certified orders increased. When the order was revoked in May 1945, this unfilled balance was 18,235 units. In July 1943, there was a critical unfilled demand for 300,000 watches for hospital use. It was decided to use nonjeweled watches with conventional second hands, in place of the sweep-type normally used on nurses' watches, to fulfill this requirement. It was believed that these 300,000 watches could be produced in a relatively short time. Due to the volume and urgency of warwork being done by the nonjeweled watch industry, however, only 140,148 units had been delivered by the end of the year.

In the spring of 1944 the shortage of miners' watches became critical. After much effort the War Production Board obtained 17,324 nonjeweled pocket watches which were turned over to the Mining Division (WPB) for distribution. In November 1944 an additional 1,000 units were assembled specially from semifabricated parts and were also directed toward this same need. Of these 1,000 watches to be allocated to miners, a total of 502 were diverted to the Army Engineer Corps for overseas military use, and it was not until May 8 of the following year that additional watches were secured for the Mining Division.

In 1944 the shortage of repair parts became so acute that the Department of State had to arrange with the Swiss Government under the compensation agreement for the importation of \$350,000 worth of needed watch parts.

According to War Production Board data, approximately 23,822,000 jeweled watches and movements were imported into the United States between January 1942 and July 1945. Of this total, some 4,526,000 units were pin lever, cylinder, Roskopf, and jeweled watches smaller than 6¾ Ligne. This leaves 19,296,000 jeweled watches of a type and size suitable for most essential civilian uses. Reducing this amount by 2,400,000 (the number diverted to the military under WPB Order L-323) and calculating the balance on an annual basis, leaves 4,825,000 imported timepieces per year available for essential civilian use.

The Department of Commerce estimates that roughly 40 percent of the above total was actually put to war-supporting use. Using this estimate and adding the 84,000 jeweled timepieces per year that were domestically manufactured under WPB authorization for specific industrial needs, estimated essential non-military consumption of jeweled watches during World War II averaged 2,014,000 units per year.

ESSENTIAL CIVILIAN REQUIREMENTS FOR JEWELLED TIMEPIECES

Applying the experience of World War II, the Department of Commerce evaluated economic and population changes and increased civil-defense requirements in estimating the probable defense supporting and essential civilian requirements

in any future mobilization. Specifically, the estimates were based on the following considerations:

(1) The records of the War Production Board, portions of which are cited above, indicate that essential civilian and war supporting demand for precision timepieces, during World War II, were not fulfilled and distress occurred in several areas.

(2) Postwar population increase and industrial expansion have increased the demand for timepieces. In planning the needs for the manufacturing, mining, and railroad industries as typical large consumers of precision timepieces, it is estimated that the work forces of these industries will increase to 29 million as compared to 20 million during World War II. This estimate is derived from the data contained in the statistical abstract of the United States, and assumes the same proportionate increase in work levels over 1952 levels as occurred during World War II.

(3) Planning for future emergencies must take into account the increased needs for precision timepieces for: Hospitals, aircraft spotters, dispersed standby reserves, and many other civil defense activities not planned during World War II.

(4) In arriving at estimated requirements, consideration was given to maximum possible utilization of all civilian timepieces available, including stocks in the hands of retailers.

On the basis of the above considerations, the Department of Commerce estimates that defense supporting and essential civilian consumption of jeweled movements in any future mobilization period would be at least 1 million more movements per year than were required in World War II. Furthermore, in planning for future emergencies, no reliance can be placed on foreign sources for precision timepieces.

It is the considered judgment of the Department of Commerce that domestic production of a minimum of 3 million jeweled timepieces per year will be required to meet essential nonmilitary requirements under conditions of full mobilization.

THE WEST EUROPE PRESS

UNITED STATES DUTY RISE ON SWISS WATCHES CREATES ALARM IN FREE EUROPE

IN BRIEF: SWISS-WATCH DUTY CASE STIRS WORLD OPPOSITION

After 18 years of mutually profitable and expanding commercial relations under a reciprocal trade agreement, the United States suddenly increased its import duties on Swiss watches on July 27, 1954. The increase, amounting to 50 percent on the most popular type movements, was put into effect by President Eisenhower through an Executive order after three domestic jeweled lever watch manufacturers, over the opposition of more than 300 firms which import and assemble watches, petitioned the United States Tariff Commission for relief from foreign competition.

The Swiss, through their legation in Washington, immediately objected to the decision as a devastating blow to that small, democratic nation's economy. The Swiss watch industry, composed of more than 2,000 suppliers and manufacturers employing 60,000 persons, exports 95 percent of its production, one-third of those exports going to the United States.

In the United States, 79 percent of the Nation's newspapers and all national magazines commenting on the President's action strenuously opposed it. The order was similarly attacked by a wide variety of organizations and individuals representing business and industry, labor, agriculture, and public-affairs groups.

Some reasons supporting these protests

1. Declining income from watch sales to the United States would cut Swiss purchases of our tobacco, wheat, and machinery, and thus reduce employment and profits of United States farm and factory workers.

2. Setting up tariff barriers now develops in the minds of free Europeans harmful conflicts between what America says about developing freer international trade and what she actually does about it.

3. To European industrialists, the watch-tariff increase means fresh opposition to imports of manufactured goods in the United States. Europeans who urge closer economic ties with Russia will seize this as an argument to move such

goods to the East, thus threatening our political effort to build a democratic coalition against Soviet aggression.

4. Europe will doubt that the Swiss watch duty is a special case to preserve a pool of United States watchmakers for defense work, knowing that the bulk of this work in the past was done by American craftsmen in other precision fields.

THE STATIST GIVES EUROPE'S CURRENT ATTITUDE TOWARD UNITED STATES FOREIGN-TRADE POLICY

TODAY, SWISS WATCHES—TOMORROW, BRITISH BICYCLES?

"* * * Alleging that the American watch industry was imperiled by the continuous increase in the import of Swiss watches, the American manufacturers invoked the notorious 'escape clause' * * *. On July 27, 1954, President Eisenhower granted the petition (for a 50-percent tariff increase).

"This decision provoked a storm of protest all over the world, not least of all in America itself, because of its arbitrary, unilateral character and because most competent observers in other countries interpreted this decision as a proof that in the United States the protectionists had again obtained control * * *.

New American attack

"In view of the nature of the worldwide reaction to the Presidential decision, the presumption in Switzerland was that no further provocative action would be taken by America against the Swiss watch industry for a considerable time (yet), a new American attack on the Swiss watch industry has begun by the filing of a suit before the American courts by the Antitrust Division of the United States Department of Justice against a large number of firms importing and assembling Swiss watches, and a number of noncommercial organizations in the United States whose task is to promote the sale of Swiss watches. * * *

"The view of leading Swiss jurists is that the attempt of the United States Department of Justice to penalize the Swiss watch industry, because its form of organization in Switzerland is out of harmony with the provisions of American law, is an encroachment on the sovereignty of Switzerland. If, by exerting such pressure, the United States Department of Justice were to succeed in forcing the Swiss watch industry to reorganize, the same procedure could be followed in every other country of Europe, thus enabling the United States finally to dominate every sphere of European economic life. * * *

Effects of action

"In practice, the export of Swiss watches to the United States is bound to suffer until the antitrust issue has been settled. * * *

"Underemployment in the watch industry will keep wages in all Swiss industries under pressure. Deflationary effects are inevitable. * * *

"* * * Europe must have outlets for the sale of her surplus production. Her economic expansion depends primarily on Europe being able to sell freely in the United States. By resisting the inflow of European products, one set of American authorities depress wage levels in Europe and thus perpetuate the evil other American authorities are trying to cure. * * *

"Until the American Government have abolished the iniquitous 'escape clause,' adopted a consistent, long-range policy for the buildup of the economic future of the Western World as a whole, and resolved to stick to this program through thick and thin, even when at times the short-run consequences for certain particular American industries appear to be unfavorable, no European industry will be free from the risk of upheavals due to the uncertainties of the American market. Today—Swiss watches. Tomorrow—British bicycles?"

THE BRITISH PRESS

UNITED STATES IMPORT OUTLOOK GLOOMY

"There is no particular optimism to be derived from the application of laws and systems already operating to the detriment of exporters to the United States. The Buy American Act goes on. The 'escape clause' in the Reciprocal Trade Act likewise remains * * * and the increased duty on watches, with possibly far-reaching effects on Swiss trade, is also recent news. There seems to have been no change of heart anywhere in the direction which all the commonwealth and European countries desire."—Times (London).

WATCH TARIFF A MAJOR BLOW

"The Swiss watch decision * * * tends to underline the contradiction of American belief in free competition. * * *. The decision will prove a major blow not only to Switzerland and other exporters but also to growing forces for liberalizing trade in America itself * * *."—Financial Times (London).

RISE HARMS EUROPE'S ECONOMIC RECOVERY

"The European League of Economic Cooperation is seriously concerned by the recent decision of the United States of America to increase the duty on Swiss watches.

"Unless America creates favorable conditions by herself applying the liberal principles of commercial policies which she continually advises others to follow, neither European integration nor even world commercial expansion, both in the best interests of America, will be attained."—Cote Desfosses (Paris).

SWISS WATCH EXPORTERS IN QUANDRY

"Swiss Horlogere points out the contradictions of American politics. If Switzerland sells many watches to the United States, the escape clause is involved. If she sells a little less, it is the Department of Justice which enters the picture. Are the products inexpensive? That is parried by a duty increase.

"If the prices reach a higher level, the spotlight is directed on the Sherman law. If an effort is made to preserve a minimum of order and ethics in the sale of Swiss watches on the American market, it is labeled an attempt to shackle free competition. In the reverse case you are dealing a criminal blow to the United States watch industry.

"If we do not earn enough dollars to pay our imports then we are dunces who should be put under guardians.

"If we do earn enough, then we are called 'spoil sports' because we do not let the United States of America play the part of Santa Claus. * * *"—L'Impartial (Paris).

SEE UNITED STATES PROTECTIONIST TREND

"President Eisenhower's decision to increase the duty rates on watches most frequently imported to the United States is destined to make a furor.

"By taking this step, President Eisenhower has shown himself responsive to * * * strong pressure by the protectionist section of the Republican party. Since the measure also has been recommended to the American Government by the Federal Tariff Commission, it is being interpreted as a sign of a new tendency in the foreign trade policy of the United States."—La Vie Francaise (Deauville).

DUTY RISE STUNS THE SWISS

Geneva

"If the American Government had deliberately sought the most effective means of losing its friends and encouraging its enemies overseas, it could not have found a more effective formula than the decision of President Eisenhower to increase the Swiss-watch tariffs."—Tribune de Geneve.

Lausanne

"The (tariff) action by the President * * * shows us on the one hand that General Eisenhower, in his daily actions, must consider the pressure of private interests. On the other hand it shows us that, for political expediency in an American election year, one doesn't hesitate to throw overboard all previous emphatic declarations * * * preached to the nations of the world."—Gazette de Lausanne.

Bienne

"Attacks in the United States against Swiss watches began long ago. A few years ago they were repulsed by President Truman who could not, even for an instant, ignore the security of the free world in order to support a few powerful commercial firms."—Journal de Jura.

Neuchatel

"The Communists would be only too happy to stir up among us hate for the Americans. They've been trying to do this for years without success. The case of the watch tariffs has provided grist for their mills and they have been quick to exploit it to the maximum."—*Feuille D'Avis*.

Radio Berne

"The 50-percent tariff raise strikes brutally at the 60,000 families of Swiss watchmakers. Among other Swiss families it creates a flagrant contradiction between what the United States preaches and what she practices. In the future her grandiloquent declarations on the virtues of free competition and liberal trade practices will be received with justified skepticism."

FROM THE NETHERLAND PRESS

"There is only one man who can prevent the threatening turn to protectionism indicated in United States foreign trade policy. That man is President Eisenhower. But can we expect it?"—*Handels and Transport Courant (Rotterdam)*.

"The argument of defense-necessity (of United States watchmakers) is not convincing in Switzerland, for a short time ago a military expert specifically denied that point. * * * The Swiss-watch tariff is an example of a dangerous dualism in the trade policy of America."—*Het Vaderland (the Hague)*.

"Can we still attach any practical meaning to all of the wise advice Americans so liberally distribute to Europe after the watch decision? They set a very bad example, indeed, for they clearly ask us to 'listen to our words; don't look at our action.'"—*Courant (Arnhem)*.

THE BELGIAN VIEW

"* * * The nations of the non-American free world have been persuaded that their exports to the United States will solve their economic problems. But the watch-duty case proves that free-world exporters to the United States have no economic security. * * *"—*Libre (Brussels)*.

COMMENTS FROM SWEDEN

"It cannot be concealed that the United States tariff increase (on Swiss watches) is a striking deviation from the principles of liberalizing foreign trade and the importance of free competition which the United States of America ostentatiously proclaims. * * * It is remarkable that the interests of a small group of manufacturers, 3 or 4, have been given priority over the country's prestige in the world market."—*Dagens Nyheter (Stockholm)*.

The United States tariff on Swiss watches "strikes a blow not only against the Swiss * * * but against all who have dreamed about and struggled for liberalized international trade relations. Demands for increased tariff protection have also been made for a string of other goods. President Truman, in his day, took a clearly defined stand against these demands. * * * By yielding on Swiss watches, President Eisenhower * * * causes great uneasiness and disturbance to world trade. * * *"—*Kuriren (Eskilstuna)*.

AND CANADA, TOO, TAKES A STAND

Toronto Daily Star: "* * * The President's decision to boost tariffs (on Swiss watches) cannot help but discourage international efforts toward free trade. Swiss watches were regarded by all as an important test case. And Mr. Eisenhower's action here demonstrates that, when the chips are down, protectionism still dominates United States trade policy."

"The really disturbing feature about the decision is the fact that it may discourage the efforts of other nations to develop American markets. Trade with the United States is one of the few ways Europe and the sterling-area countries can hope to overcome their dollar shortages and make their currencies convertible. If, in building up American markets, they run the risk of having tariffs raised against them as the Swiss have, they may not consider it worth the effort."

The Montreal Star: "* * * This is what deeply disturbs the friends and allies of the United States: the decision runs sharply counter to the whole trend of Presidential policy since 1933. 'Trade, not aid' has been the country's

postwar slogan, yet the present decision strikes hard at the biggest industry of one of the firmest friends the United States has, a friend moreover as firmly dedicated to the cause of private enterprise as the United States itself. When next the Congress and Government of the United States read a lecture on the subject of 'Trade, not aid,' the Swiss-watch case will haunt the ensuing controversy * * *

Representative BOLLING. Our next witness is Mr. S. Ralph Lazrus. Mr. Lazrus joined with his brothers to form the Benrus Watch Co. He has been president of the company since 1954. He has been active in the American Watch Association. He was president of the American Watch Assemblers Association, which was the predecessor organization to the present importer-assembler group.

Mr. Lazrus, we are happy to have you with us, and you may proceed as you wish, sir.

STATEMENT OF S. RALPH LAZRUS, PRESIDENT, BENRUS WATCH CO., INC., NEW YORK CITY, N. Y.

Mr. LAZRUS. My name is S. Ralph Lazrus. I am president of the Benrus Watch Co., with headquarters in New York City.

I want to join my associates this morning in thanking you most sincerely for this opportunity to present certain relevant facts concerning the relationship between our efforts to preserve essential skills and our foreign economic policy. As Mr. Anderson has explained, I will confine my remarks to three aspects of this problem: (1) The skills possessed by watch importer-assembler companies which are useful to the armed services; (2) the relative cost of producing watches in Switzerland and in the United States; and (3) how the Swiss assure themselves a continuing supply of highly-skilled horological engineers and technicians.

DEFENSE PRODUCTION BY IMPORTER-ASSEMBLER FIRMS

As Mr. Anderson has stated, we in the importer-assembler segment of the American watch industry do not deny that horological skills can be useful to defense production or that the three jeweled-watch manufacturers are capable of producing important ordnance equipment. What we say is this: there are no defense items procured from these three firms which cannot be obtained from many other precision companies.

To illustrate this fact, I would like to mention very briefly the defense production record of my own company which, I might add, is not unique among watch importer-assembler firms. As you know, we have certain precision manufacturing operations which we perform in this country. For example, we produce watchcases and bracelet in our Waterbury, Conn., plant; we also have a skilled work force in New York City, where we test and regulate our movements, assemble them into watches, and make repairs. Hence, Benrus production workers possess skills in precision work which are comparable to the skills of employees at the three domestic manufacturing companies.

This has enabled us to make a very substantial contribution to the national defense. During World War II and the Korean conflict, Benrus produced \$16 million worth of precision defense items of the same type and character as was produced by the domestic watch

manufacturers, and received a number of official commendations for our outstanding achievements.

Because this is a record in which we take considerable pride, I would naturally like to be able to describe in detail our performance for the Armed Forces. However, in the interest of time, I will request that a summary of our defense work be inserted in the committee record, without my taking the time to read it, and I will pass it on. I would like, however, to mention a few highlights which, I believe, are pertinent to this discussion:

1. During World War II, we furnished millions of critically needed parts to other watch and clock manufacturers, including Elgin, Waltham, Chelsea Clock, New Haven Clock, United States Time, and others.

2. We also supplied some of the most vital components used by Sperry Gyroscope, Bendix Aviation, Eastman Kodak, General Electric, General Motors, National Cash Register, and many, many other prime contractors who depended on us for certain precision parts used in their gun sights, fuzes, and instruments.

3. In comparative tests performed on Benrus products and the same items produced by other contractors, including domestic watch manufacturers, the performance of Benrus products ranked first.

4. Not only was this material produced speedily, but it was also furnished efficiently, resulting in a substantial savings to the Government compared with the prices charged by other contractors, including the domestic watch manufacturers.

5. Since the Korean conflict, Benrus has bid on 38 jobs and has been low bidder 15 times, or 40 percent of the time. In fact, 82 percent of our bids have been among the 5 lowest bidders, in competition with an average of 16 bidders per contract.

6. On every single contract on which we bid in competition with domestic watch companies, whether or not we were low bidder, our bid was significantly lower than theirs. On the average, their bids were approximately $2\frac{1}{2}$ times as high as those of Benrus, and this disparity does not involve anything that is imported from Switzerland or elsewhere.

I cite these facts, Mr. Chairman, not to boast of our own operations, but to point out that there is nothing sacrosanct about the achievements of the domestic watch manufacturers. In my opinion, there are scores of precision companies—both within and outside the horological industry—who can produce the same character of defense work as these firms, in the same quantities and with at least equal efficiency.

RELATIVE COST OF PRODUCTION IN SWITZERLAND AND THE UNITED STATES

Through the years, there has been much talk by the protectionist forces concerning the unfair competition to American workmen offered by cheap foreign labor, and this claim has been raised by the domestic watch manufacturers.

The truth of the matter is that the skilled watchworker in Switzerland is the highest paid employee not only in his own country but in all of Europe. His salary is even higher than the precision watch workers in neighboring Germany and France, and far exceeds the

salaries paid in other European industries. In addition to a substantial basic salary of nearly \$1 per hour, the skilled Swiss watchmaker receives certain fringe benefits which are normally not paid by American firms, such as family allowances, depending upon the number of children, cost-of-living allowances, and supplemental pay for piece-work. In addition to this, Swiss watchworkers receive normal fringe benefits—such as social security, health insurance, and paid vacations—which amount to about 14 percent of his basic salary.

I do not want to give the impression that the Swiss watchmaker is as well paid as his American counterpart. This is not true. In 1953, the latest figures which I have seen, it was estimated that the skilled American watchworker earns about 63 cents per hour more than his Swiss counterpart. However, it should be remembered that living expenses, particularly food, clothing, and housing—are considerably higher in the United States and, therefore, there is not a great difference in real wages.

In any event, under no stretch of the imagination can it be said that the United States watch industry is facing competition from cheap foreign labor. There is a difference in labor cost, to be sure. But the major difference between the American and the Swiss-jeweled watch industries lies in productivity, in better design, and in better production techniques employed by the Swiss.

Of course, the present tariff structure goes a long way toward equalizing the cost of production here and in Switzerland. As a result of the 1954 tariff increase, a watch movement which was formerly admitted for \$2.70, for example, is now assessed at \$3.85. When the cost of shipping, handling, and other importing expenses is added to this high duty, the effect is to place Swiss imports on a virtual parity with the cost of domestically produced movements.

As was emphasized by the report of the Randall Commission on Foreign Economic Policy, it is illogical and poor public policy to attempt to equalize foreign and domestic production costs through the tariff device. Such a concept would inevitably wipe out all incentive to international trade. In this connection, the Randall Commission report contained the following statement:

American labor should not be subjected to unfair competition as part of any program to expand our foreign trade. It must be made clear, however, what constitutes "unfair competition." Manifestly, wage levels cannot be used as the sole guide. Unit labor costs are not a dependable guide either. Differences in cost provide the foundation of international trade.

I am convinced that through the introduction of modern management and merchandising techniques, and the installation of newer production methods which have been adopted by many other American industries, the American watch manufacturers could more than meet the competition offered by the Swiss. I say this because I happen to believe that the competitive urge and know-how which exists in most American industries enables them to compete on better-than-equal terms with anyone in the world. Unfortunately, the American watch manufacturers, instead of giving free competition a chance to work, have developed a stagnation through the years which is reflected in their designs and in their merchandising.

Rather than attempt to compete with the Swiss watch industry, they have relied on appeals to the United States Government to bail

them out of difficulties which actually result from their own shortcomings.

HOW THE SWISS OBTAIN WATCHMAKING SKILLS

It is hard for us, here in America, to realize the tremendous impact which the watch industry has on the economy of Switzerland. The fact is that the watch industry accounts for more than 10 percent of all Swiss employment, and about 50 percent of its dollar earnings. There is no doubt that the watch industry forms the very heart of the Swiss economy.

As a result, the most talented young men and women in Switzerland are encouraged to go into the watchmaking art. There are seven horological schools in Switzerland, financed jointly by the watch industry and the Government. Swiss students who have completed the equivalent of a junior college attend these schools for 4 or 5 years. They receive the most intensive training both in the practical watchmaking art and in theoretical design and engineering. Courses begin with physics, chemistry, and mathematics, which are taught in the first year, and progress through courses in astronomy, mechanical studies in chronometry, special metallurgy for watchmaking, and so forth. Toward the end of the training, students spend considerable time in various cooperating manufacturing plants, so that all phases of the watchmaking art are covered, both in theory and practice.

After graduation, a few of the more talented students are recommended for even higher learning at one of the famous Swiss observatories or at the Swiss Laboratory for Horological Research, which is also supported both by the industry and the Government. This institution, incidentally, devotes its full time to scientific research in horology, serving both as a research organization for the industry and as the equivalent of a postgraduate school in the horological arts.

It may interest the committee to know that, as contrasted with this determined Swiss effort to obtain a continuing flow of the finest watchmaking designing and engineering skills, there is not a single course of this kind which is offered in the United States. In my opinion, this is probably the most important single reason why the Swiss have been able to capture a large part of the expanded market for watches throughout the world. The Swiss have created these new markets by developing advanced products which have attracted the consuming public.

If the domestic watch manufacturers were truly interested in expanding their skills for national defense purposes, if not for their own basic survival, is it not peculiar that they have not financed a single seat at any American university for horological studies? Is this not a vivid example of the fact that the basic difficulty with these three companies is that they have not been alert to the times and aggressively interested in protecting their future welfare?

If the Government is truly interested in expanding our base of horological skills, would it not make more sense to encourage such training at the university and graduate school level, rather than attempting to snuff out the incentive which comes from imports reflecting enlightened Swiss research in these fields?

Thank you.

Representative BOLLING. Thank you, Mr. Lazrus.

(The statement submitted by Mr. Lazrus is as follows:)

WORLD WAR II AND KOREAN CONFLICT DEFENSE RECORD OF THE BENRUS WATCH CO.,
SHOWING DEFENSE ESSENTIALITY OF BENRUS

This statement has been prepared to show that the Benrus Watch Co., although an importer of watch movements from its plant in Switzerland, has made an extremely important contribution to national defense, in the manufacture of precision components, assembly of precision components including fuses, and can continue to do so when needed.

During World War II, we were awarded the Army-Navy "E", and subsequently three stars for the continued excellence of our production. Admiral Hussey, Chief of Ordnance of the United States Navy, telegraphed congratulations to Benrus and its workers for the superior performance of their products in an important Japanese naval engagement. A copy of this telegram is attached as exhibit A. We received many additional unsolicited letters of commendation, including many from prime contractors holding important defense contracts requiring precision components.

We were one of the first companies, capable of making precision parts, to undertake such a program during World War II. During this period and the Korean conflict, the Benrus Watch Co. produced \$16 million worth of precision defense work. A detailed breakdown of our defense shipments by years, showing the item and the end use, is contained in exhibit B. These items were for various divisions of the Department of Defense, including Frankford Arsenal, Picatinny Arsenal, Springfield Ordnance District, Springfield Armory, and Watervliet Arsenal.

In addition, we supplied many millions of critically needed precision parts to other watch and clock manufacturers for mechanical time fuzes, including Elgin National Watch Co., Waltham Watch Co., Chelsea Clock Co., Jaeger Watch Co., New Haven Clock Co., and United States Time Corp. In addition, we furnished some of the most critical components to Sperry Gyroscope Co. for their gunsight, as well as many critical components for mechanical time fuzes for some of the country's most important prime contractors on precision defense work, particularly mechanical time fuzes, such as Bendix Aviation Corp., Eastman Kodak Co., Thomas A. Edison Co., General Electric Co., General Motors Corp., National Cash Register Co., Willys-Overland Motors, Inc. A more complete list of prime contractors, numbering 53 companies, for whom we made substantial quantities of critically needed precision components and assemblies used primarily on mechanical time fuzes and aircraft instruments, is contained in exhibit C.

We have not only produced this precision work well, but efficiently as demonstrated by the information that follows:

(1) During World War II we undertook contracts for items such as the M129 mechanical time fuze, rotors and firing pins for the 40 millimeter Bofors antiaircraft fuze. We made voluntary reductions on the selling price of these fuzes and fuze components, as follows:

Item	Original price	Final price
M129 mechanical time fuze.....	\$3.00	\$1.57
40 millimeter Bofors rotor.....	.10	.049
40 millimeter Bofors firing pin.....	.012	.00964

It is interesting to note that although one of the domestic watch companies had the research and development contract on the M129 fuze, Benrus ultimately produced these fuzes at \$1.57 each, whereas the price from the other watch company was in excess of \$2 per fuze.

These fuzes were not only lowest in price, but of the highest quality. This was established during firing tests conducted at Jefferson Proving Grounds on December 4, 1944. The fuzes made by the Benrus Watch Co. were the only ones tested in the field test that had a perfect record, not a single failure out of the entire group. The other domestic watch companies had a substantial percentage of failures, one with failures in excess of 14 percent, and the other with an even greater percentage of failures. A photostatic copy of this report, entitled "Special Test of Fuze Bomb M129 (T47)," written by Capt. W. E. Watson and Capt. J. T. Seavell, and approved by Col. William B. Hardigg of the Ordnance Department, commanding officer, is attached as exhibit D.

On the 40 millimeter Bofors fuze parts our production reached such proportions and our quality was so good that we became the main supplier in the country on these parts, although we were not the first company to start manufacturing them. We made these rotors and firing pins for virtually every prime contractor on the fuze, including American Safety Razor Corp., Chase Brass & Copper Co., Easy Washing Machine Co., Hurd Lock & Manufacturing Co., McGraw Electric Co., Perfex Corp., Tungsten Contact Co., Willys-Overland Motors, Inc.

Ultimately Benrus alone was making in excess of 50 percent of all rotors and approximately 90 percent of all firing pins supplied throughout the entire country for the 40 millimeter Bofors fuze.

At the end of the war as a result of contract renegotiation we did the following:

- (a) Paid to the Government approximately \$900,000 in cash;
- (b) Did not process a termination claim amounting to \$995,000, covering terminated contracts with Springfield Arsenal, although this claim was approved;
- (c) Did not process termination claims against prime contractors, although these claims were approved, amounting to \$220,000, which termination charges would have been passed on by the prime contractors to the Government.

(2) Since the outbreak of hostilities in Korea, we have bid on 38 jobs, and have been low bidder 15 times, or 40 percent of the time. Out of the 38 jobs we have bid on, only 3 have been on negotiated contracts, the balance on open bid contracts. In addition, we finished second 5 times; third, 4 times; fourth, once, and fifth, 6 times. In other words, in 31 out of 38 bids, or 82 percent of the time, our bids have ranged between the lowest bid and the fifth lowest bid, in competition with an average of 16 bids, per invitation to bid.

A tabulation showing the items on which we bid, the low bid and our bid, and the position of our finish in the bidding, is shown as exhibit E.

It is most interesting to note that on every single contract on which we bid in competition with domestic watch companies, whether we were low bidder or not, our bid was without exception significantly lower than the domestic watch companies. On the average the domestic watch company bids were approximately 2 times as high (242 percent) as the Benrus Watch Co. bids, and this disparity in bid prices does not involve anything that is imported from Switzerland or elsewhere.

A tabulation supporting this statement, showing the Benrus bid and position of bid, as well as the bid and position of bid of the domestic watch companies, is attached as exhibit F.

(3) On our very last contract (invitation No. ORD 28-017-53-49), completed for the Government in 1954, which involved the manufacture of the M139A1 and M140A1 bomb nose fuzes, Benrus was low bidder at \$7.69 per fuze. The next bids were as follows: (a) The second bidder, \$15.59 per fuze; (b) the third bidder, \$22.75 per fuze; (c) the fourth bidder, \$26.50 per fuze. Percentagewise, the second bidder was more than double our bid (206 percent), the third bidder was almost 3 times as high as our bid (296 percent), and the fourth bidder was almost 3½ times our bid (345 percent). Expressing it differently, our total contract was \$645,960, the second bidder's total contract price was \$1,309,560. If Benrus had not entered a bid for this job, it would have cost the United States Government an additional \$663,600 to produce a \$646,000 contract. And it should be added that we made a modest profit with this extremely low bid.

EXHIBIT A

WASHINGTON, D. C., February 8.

To the Men and Women of Benrus Watch Co., Waterbury Manufacturing Division, Waterbury, Conn.:

Ordnance equipment of your manufacture contributed to a smashing victory of a United States destroyer squadron and cruiser division against heavy Jap naval forces recently in the Pacific. The enemy was routed after a 3-hour night sea battle. Following which an attack of some 75 Jap planes was successfully beaten off.

The commanding officer of the American task force reported: "Ordnance equipment worked so well we forgot about it. It hits fast, hard, and accurately."

You may be proud that your rotors and firing pins for 40-millimeter ammunition and mechanical time fuzes for 5-inch projectiles are helping to provide our fighting men with such effective ordnance.

G. F. HUSSEY, Jr.,
Rear Admiral, United States Navy, Chief of the Bureau of Ordnance.

EXHIBIT B

DEFENSE SHIPMENTS BY BENRUS WATCH CO., INC., DURING WORLD WAR II
AND DURING THE KOREAN CONFLICT

Defense shipments by Benrus Watch Co., Inc., during World War II

For period ended June 30, 1941 (12 months)-----	\$96,643.41
For period ended July 31, 1942 (13 months)-----	895,332.48
For period ended July 31, 1943 (12 months)-----	2,404,637.67
For period ended July 31, 1944 (12 months)-----	4,007,781.88
For period ended July 31, 1945 (12 months)-----	6,814,224.80
Total dollar volume-----	14,218,620.24

Period ended June 30, 1941, \$96,643.41

Parts	End use	Parts	End use
Gear No. 1-----	M-43 fuze.	Pinion No. 3-----	M-43 fuze.
Centrifugal gears-----	Do.	Pinion No. 5-----	Do.
Escapement arbors-----	Do.	Timing disc retainer-----	Do.
Firing-arm weight-----	Do.	Pinions-----	British fuze.
Escapement pinion-----	Do.	BFM striker-----	Do.
Pinion No. 1-----	Do.	BFM setback pin-----	Do.
Pinion No. 2-----	Do.		

Period ended July 31, 1942, \$895,332.48

Parts	End use
Rotor assembly-----	40 millimeter Bofors antiaircraft fuze.
Pallet arbors-----	British fuze.
Center pivots-----	Do.
Escape pinion-----	Do.
Third pinion-----	Do.
Fourth pinion-----	Do.
Setback pins-----	M52 B1 fuze.
Timing disc retainer-----	M43 mechanical time fuze.
Gear No. 1-----	Do.
Adjusting screws-----	Do.
Centrifugal shaft-----	Do.
Escapement arbors-----	Do.
Pinion No. 1-----	Do.
Pinion No. 2-----	Do.
Pinion No. 3-----	Do.
Firing pins-----	Do.
Gear No. 5-----	Do.
Pinion No. 5-----	Do.
Centrifugal gear-----	Do.
Escapement arbor blanks-----	Do.
Safety lever weights-----	Do.
Firing arm weight-----	Do.
Pinion No. 1 blanks-----	Do.
Pinion No. 2 blanks-----	Do.
Pinion No. 3 blanks-----	Do.
Pinion No. 5 blanks-----	Do.
Bridge locating pin-----	Aircraft.
Pivot screws-----	Do.
Pivot-----	Navy.
Setback pins-----	M52 B1 fuze.
Handstaff-----	Aircraft.
Stainless steel hex nuts-----	Do.
Pinion shaft-----	British fuze.
Valve holder and insert assembly-----	Oxygen masks.
Firing pins-----	40 millimeter Bofors antiaircraft fuze.
Escapement pinions-----	M43 mechanical time fuze.
Timing disc retainers-----	Do.

Period ended July 31, 1943, \$2,404,647.67

Parts	End use
Rotor assembly.....	40 millimeter Bofors antiaircraft fuze.
Pallet arbors.....	British fuze.
Center pivots.....	Do.
Escape pinion.....	Do.
Third pinion.....	Do.
Fourth pinion.....	Do.
Set back pins.....	M52 B1 fuze.
Timing disc retainer.....	M43 mechanical time fuze.
Gear No. 1.....	Do.
Adjusting screws.....	Do.
Centrifugal shaft.....	Do.
Escapement arbors.....	Do.
Pinion No. 1.....	Do.
Pinion No. 2.....	Do.
Pinion No. 3.....	Do.
Firing pins.....	Do.
Gear No. 5.....	Do.
Pinion No. 5.....	Do.
Centrifugal gear.....	Do.
Escapement arbor blanks.....	Do.
Safety lever weights.....	Do.
Firing arm weight.....	Do.
Pinion No. 1 blanks.....	Do.
Pinion No. 2 blanks.....	Do.
Pinion No. 3 blanks.....	Do.
Pinion No. 5 blanks.....	Do.
Bridge locating pin.....	Aircraft.
Pivot screws.....	Do.
Pivot.....	Navy.
Set back pins.....	M52 B1 fuze.
Handstaff.....	Aircraft.
Stainless steel hex nuts.....	Do.
Pinion shaft.....	British fuze.
Valve holder and insert assembly.....	Oxygen masks.
Firing pins.....	40-millimeter Bofors antiaircraft fuze.
Escapement pinions.....	M43 mechanical time fuze.
Timing disc retainers.....	Do.
Cocking pin screws.....	
Cocking pin studs.....	
Nickel nuts.....	
Fork joint blanks.....	Aircraft.
Bronze valves.....	Do.
PB10815 pinion.....	Do.
PB10816 pinion.....	Do.
Segment and arbor assembly.....	Do.
Brass tapered pins.....	Do.
Hair spring anchor posts.....	Do.
Armature shafts.....	Field telephone.
Armature nuts.....	Do.
Ferrules.....	Aircraft.
Retainers.....	Do.
Elevating pinion.....	Army.
Fork joints.....	Aircraft.
Chobert rivets.....	Do.
Gears.....	Army Signal Corps.
Rods.....	Do.
Pins.....	Do.
Shafts.....	Do.
Spacers.....	Do.
Handles.....	Do.
Heart cam screw.....	Do.
Adapter nipples.....	Army Air Force.
Collars.....	Do.
Pivot bearing assemblies.....	Navy.
Stacking swivel screw.....	Army—M30 rifle.
Rear sight slide cap.....	Do.
Cutoff screw.....	Do.
Elevating pinion.....	Do.
Upper band screw.....	Do.
Front guard screw.....	Do.
Rear sight windage screw.....	Do.
Pinion No. 1.....	M111 fuze.
Pinion No. 2.....	Do.
Pinion No. 3.....	Do.

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Period ended July 31, 1944, \$4,007,781.88

Parts	End use	Quantity	Dollar value
M129 mechanical time fuze.....	M129 fuze.....	216,000	\$474,120.00
Rotor assembly.....	40-mm. Bofors antiaircraft fuze.....	32,116,383	1,658,737.25
Firing pins.....	do.....	53,223,242	542,527.51
Pivots and bearings.....	Sperry gun sight.....	291,427	291,427.00
Contact sockets.....	Field telephones.....	4,070,588	101,764.70
W-58 escapement arbors.....	M43 fuze.....	1,694,127	92,465.45
1053X retainers.....	do.....	337,492	50,623.80
Pinions and escape pinions.....	M111 fuze and M43 fuze.....	1,452,904	60,069.43
Rivets.....	Aircraft.....	2,708,705	21,669.64
Ferrules.....	do.....	259,685	20,774.80
Gears.....	M111 and M43 fuze.....	34,998	30,856.57
Nickel nuts.....	do.....	160,350	16,035.00
Armature nuts and shafts.....	do.....	772,271	14,293.29
Rear sight windage screws and cutoff screw.....	M30 rifle.....	481,400	17,807.37
Contact pins.....	Field telephones.....		
Segment gears.....	Air speed indicators.....		
Rotor blanks.....	40-mm. fuze.....		
W-120-2 centrifugal gears.....	M43 fuze.....		
Gear pinion assembly.....	M129 fuze.....		
First wheel.....	do.....		
Escape wheel shafts.....	do.....		
Pivots.....	Sperry gun sight.....		
Fork joints.....	Aircraft.....		
F-68-2 Pinion No. 2.....	M43 fuze.....		
F-70-2 Pinion No. 3.....	do.....		
First pinion.....	M129 fuze.....		
Gear No. 5.....	M43 mechanical time fuze.....		
Pinion No. 5.....	do.....		
Safety lever weights.....	do.....		
Firing arm weight.....	do.....		
Pinion No. 1 blanks.....	do.....		
Elevating pinion.....	Army—M30 rifle.....		
Upper band screw.....	do.....		
Front guard screw.....	do.....		
Pinion No. 1.....	M111 fuze.....		
			614,610.07

Period ended July 31, 1945, \$6,814,224.80

Part	End use	Quantity	Dollar value
M129 mechanical time fuze.....	M129 fuze.....	2,084,000	\$3,922,280.00
Rotor assembly.....	40-mm. Bofors antiaircraft fuze.....	28,230,000	1,416,510.00
Firing pins.....	do.....	71,376,908	688,375.08
Pivots and bearings.....	Sperry gun sight.....	415,956	269,396.00
W-58 escapement arbors.....	M43 fuze.....	2,369,185	110,049.60
Pinions and escape pinions.....	M111 fuze and M43 fuze.....	583,329	27,708.13
Rear sight windage screws and cutoff screw.....	M30 rifle.....	59,518	7,439.76
Contact pins.....	Field telephones.....	3,419,812	55,174.55
Segment gears.....	Air speed indicators.....	414,592	15,132.61
Rotor blanks.....	40-mm. fuze.....	1,851,962	12,963.74
W-120-2 centrifugal gears.....	M43 fuze.....	272,771	5,492.32
Gear pinion assembly.....	M129 fuze.....	3,184,000	5,158.08
First wheel.....	do.....	394,420	20,904.26
Escape wheel shafts.....	do.....	10,932	27,330.21
Pivots.....	Sperry gun sight.....	234,542	93,816.80
Fork joints.....	Aircraft.....	82,220	32,386.84
W-68-2 pinion No. 2.....	M43 fuze.....	467,335	28,040.10
W-70-2 pinion No. 3.....	do.....	413,570	23,894.16
First pinion.....	M129 fuze.....	567,479	22,699.16
Gear No. 5.....	M43 mechanical time fuze.....		
Pinion No. 5.....	do.....		
Safety lever weights.....	do.....		
Firing arm weight.....	do.....		
Pinion No. 1 blanks.....	do.....		
Elevating pinions.....	Army—M30 rifle.....		
Upper band screw.....	do.....		
Front guard screw.....	do.....		
Pinion No. 1.....	M111 fuze.....		
			29,473.40

Defense shipments by Benrus Watch Co., Inc., during the Korean conflict and subsequent thereto

Period ended	Parts	End use	Destination	Quantity	Dollar volume
Nov. 30, 1954	Fuze, bomb nose.....	M139-M140 fuze.	Picatinny Arsenal...	47,400	\$360,026.91
Jan. 31, 1954	do.....	do.....	do.....	37,600	
	Rotors.....	Unknown (top secret).	Eclipse-Pioneer.....	5,291	320,043.81
Jan. 31, 1953	Fuze assemblies and components.	M503 fuze.....	Springfield Ordnance.	56,415	46,455.24
	Plunger body assemblies..	M-48 fuze.....	do.....	116,212	
Jan. 31, 1952	Fuze assemblies and components.	M503 fuze.....	do.....	207,424	519,946.98
	Plunger body assembly...	M-48 fuze.....	do.....	4,139,256	
Jan. 31, 1951	Fuze assemblies and components.	M503 fuze.....	do.....	36,161	528,176.87
	Plunger body assembly...	M-48 fuze.....	do.....	6,764,532	
	Gun plates.....	20-mm. gun, M3 and M24.	Watervliet Arsenal..	75,166	
	Auxiliary detonator cups.	M-90 fuze.....	Springfield Ordnance.	432,540	1,009.53
	Firing pin assembly.....	M-48 fuze.....	do.....	849,700	
Jan. 31, 1950	Gun plates.....	20-mm. gun, M3 and M24.	Watervliet Arsenal..	196,834	300
	Auxiliary detonator cups.	M-90 fuze.....	Springfield Ordnance.	100	
	Firing pin assembly.....	M-48 fuze.....	do.....	300	1,009.53
	Total.....				1,775,659.34

EXHIBIT C

Listed below are some of the Prime Contractors and Subcontractors for whom we manufactured precision defense components or assemblies for the period January 1942 through July 1945:

- | | |
|--------------------------------------|------------------------------|
| Acme-Lees | General Motors Corp. |
| AmpereX Electronics Corp. | Hofmann, Alfred |
| American Amplifier & Telephone | Hurd-Lock |
| American Phenolic | Jaeger Watch Co. |
| American Safety Razor | Kollsman Instrument Division |
| Anti-Corrosive Corp. | King-Seeley |
| Atlas-Ansonia | Liquidometer Corp. |
| Bendix Aviation Corp. | McGraw Electric Co. |
| Balerank, Inc. | Metal Products Corp. |
| Borg Products, Inc. | National Cash Register |
| Chase Brass & Copper Co., Inc. | New Haven Clock Co. |
| Chelsea Clock Co. | Oiljack Manufacturing Co. |
| Collens Instrument Corp. | Perflex Corp. |
| Cincinnati Advertising Products | Pollak, Inc. |
| Connecticut Telephone & Electric Co. | Singer Manufacturing Co. |
| Corbin Screw Corp. | Sperry Gyroscope Co. |
| Crosley Corp. | Springfield Ordnance |
| Dictaphone Corp. | Teleoptic Corp. |
| Doelcam Machine Tool Co. | Tungsten Contact |
| Eastman Kodak | United States Instrument |
| Easy Washing Machine Corp. | United States Time Corp. |
| Eclipse Aviation Corp. | Underwood-Elliott-Fischer |
| Edison, Thomas A. | Waltham Watch Co. |
| Elgin National Watch Co. | Waldes Koh-I-Noor |
| Frankford Arsenal | Willys Overland Motors |
| Fries Instrument | Yale & Towne Mfg. Co. |
| General Electric Co. | |

(The remainder of the exhibits filed as a supplement to Mr. Lazrus' testimony is not legible and therefore has been retained in the committee's files.)

Representative BOLLING. Our next witness is Mr. M. Fred Cartoun. Mr. Cartoun took his bachelor of science in engineering at the Poly-

technic Institute of Brooklyn. For the greater part of his career he has been with Longines-Wittnauer, being chairman of the board since 1945. He had service in World War I in the Engineers Corps of the United States Army.

Mr. Cartoun, we are glad to have you with us. You may proceed as you wish.

**STATEMENT OF M. FRED CARTOUN, CHAIRMAN OF THE BOARD,
LONGINES-WITTNAUER WATCH CO., NEW YORK CITY, N. Y.**

Mr. CARTOUN. Thank you, Mr. Chairman.

My name is M. Fred Cartoun. I am chairman of the board of the Longines-Wittnauer Watch Co., New York City.

I should like to confine my statement today to three factors which I believe are of direct importance to your study of defense essentiality and foreign economic policy, and to the problem of whether or not it is advisable to impose further import restrictions in order to preserve skills of the domestic watch manufacturers. The particular points which I will cover are:

(1) What has happened through the years to the sales of the domestic watch manufacturers;

(2) Why the importers' share of the total market for jeweled watches has increased, relative to that of the domestic manufacturers; and

(3) What has been the effect of the tariff increase imposed in 1954.

TREND IN JEWELLED-WATCH PRODUCTION AND SALES

I suppose that by now everyone in Washington who is in any way connected with tariff matters has heard the persistent cry from the domestic watch producers that they will be driven out of business unless the Government takes action to curtail imports. They have been saying this consistently since the United States-Swiss Trade Agreement was signed in 1936, and certainly from their continuing cry it would be logical to assume that their sales have been steadily decreasing.

Now, what has actually happened to their watch production? In 1935, the last year before the trade agreement became effective, about 1,400,000 jeweled watches were produced in the United States. Last year, almost 2 million jeweled watches were produced. Let's see what happened through the years. Following is a table showing the history of domestic production since 1930, averaged over 5-year intervals:

United States production of jeweled lever watches (in thousands of units)

1931-35-----	781	1946-50-----	2,475
1936-40-----	1,678	1951-55-----	2,320
1941-45-----	1,602		

Those are average per year, each of those figures.

Surely, this is not a picture of an industry that is being driven to the wall. Unit watch sales of these firms have not declined but have actually increased through the years, and their dollar volume and

profits have expanded appreciably, as is seen in appendix A, which is attached to the statement.

(Appendix A is as follows:)

APPENDIX A

Financial data on leading domestic companies from 1937 to 1955

HAMILTON WATCH CO.

Year	Net sales	Net income	Total assets	Net working capital
1937	\$7,530,000	\$1,270,000	\$7,600,000	\$4,460,000
1938	5,350,000	680,000	7,200,000	4,430,000
1939	6,490,000	820,000	7,800,000	4,570,000
1943	10,030,000	580,000	10,000,000	5,130,000
1944	11,350,000	740,000	9,900,000	5,430,000
1945	11,830,000	630,000	8,500,000	6,200,000
1946	10,980,000	930,000	10,000,000	6,680,000
1947	15,600,000	830,000	11,000,000	6,750,000
1948	19,980,000	1,710,000	12,600,000	7,570,000
1949	18,740,000	1,420,000	13,500,000	7,820,000
1950	19,040,000	1,480,000	13,600,000	8,250,000
1951	17,340,000	970,000	19,800,000	9,730,000
1952	19,420,000	530,000	22,300,000	9,510,000
1953	33,180,000	1,530,000	24,200,000	10,530,000
1954	31,160,000	1,570,000	20,600,000	10,140,000
1955	28,066,000	1,566,000	17,839,000	11,240,000

BULOVA WATCH CO., INC.

Year	Net sales	Net income	Total assets	Net working capital
1937	\$15,750,000	\$2,510,000	\$7,500,000	\$5,710,000
1938	10,590,000	2,510,000	10,200,000	6,030,000
1939	14,760,000	1,400,000	9,700,000	7,090,000
1943	33,790,000	1,920,000	19,500,000	12,670,000
1944	46,520,000	2,450,000	23,800,000	11,140,000
1945	40,960,000	3,490,000	21,600,000	15,580,000
1946	38,390,000	3,890,000	27,500,000	15,370,000
1947	47,160,000	5,230,000	31,000,000	21,880,000
1948	50,850,000	5,360,000	33,500,000	22,200,000
1949	44,620,000	3,570,000	33,600,000	23,470,000
1950	49,690,000	3,910,000	41,000,000	27,750,000
1951	53,260,000	2,650,000	43,800,000	27,150,000
1952	60,710,000	2,680,000	50,300,000	23,480,000
1953	69,370,000	2,870,000	56,700,000	23,890,000
1954	76,410,000	2,950,000	58,700,000	29,910,000

ELGIN NATIONAL WATCH CO.

Year	Net sales	Net income	Total assets	Net working capital
1937	\$11,040,000	\$1,400,000	\$14,720,000	\$9,150,000
1938	6,780,000	690,000	14,260,000	9,290,000
1939	9,160,000	1,210,000	15,150,000	9,750,000
1943	20,820,000	1,140,000	22,700,000	12,840,000
1944	21,630,000	970,000	23,800,000	13,360,000
1945	20,680,000	1,050,000	21,540,000	13,770,000
1946	17,690,000	1,130,000	21,590,000	13,140,000
1947	22,160,000	1,390,000	22,530,000	13,200,000
1948	28,480,000	1,710,000	24,620,000	13,720,000
1949	27,630,000	1,620,000	30,220,000	14,120,000
1950	30,200,000	1,740,000	36,500,000	24,850,000
1951	42,720,000	1,780,000	44,730,000	24,960,000
1952	50,800,000	1,550,000	48,180,000	25,210,000
1953	56,720,000	2,050,000	51,410,000	26,250,000
1954	60,090,000	1,560,000	43,450,000	25,650,000
1955	51,477,000	1,918,000	40,721,000	24,859,000

¹ 1955 figures not comparable with earlier years because of change in fiscal period.

Mr. CARTOUN. I won't take the time to go into this in detail unless the chairman wishes me to.

Representative BOLLING. I think not.

Mr. CARTOUN. Just briefly, if you will take the Hamilton Watch Co., their sales have increased from \$7 million to \$28 million.

As for Hamilton's total assets, they have increased from \$7 million to \$17 million.

Bulova Watch Co. sales increased from \$15 million to \$76 million. This only goes to 1954. And Bulova's total assets have risen from \$7 million to \$58 million.

I should also mention that substantial dividends have been paid by all these companies throughout the years, or most of the years.

Elgin net sales have increased from \$11 million to \$51 million; and total assets from \$14 million to \$40 million.

These are rather impressive figures as far as sales and earnings and, of course, dividends are not reflected in these figures.

There is, however, another side to this coin. In the early 1930's, when domestic jeweled watch production averaged only 781,000 units, these companies enjoyed about 50 percent of the total market for jeweled watches. By contrast, in 1953—the most recent year for which such information is available—domestic production had increased to 2.4 million watches, but their share of the total market seems to have dropped to 20 percent.

I want to emphasize that, "seems to have dropped."

The domestic manufacturers have placed great stress on this apparent loss of their market, but as we shall demonstrate, the percentages they quote are entirely misleading. What has happened is that the total market for jeweled watches has expanded enormously during the past 20 years, due largely to improved merchandising and to new designs and styles offered the American public by importer-assembler firms. The sales of the domestic manufacturers have not fallen, but they have failed to keep pace with the market, which has nearly tripled.

WHY IMPORTERS HAVE INCREASED THEIR SHARE OF THE MARKET

If we examine the trends in the American watch market, it is not hard to understand why there has been a substantial increase in sales and why watches containing Swiss movements have been able to capture a larger part of this expanded market. There are two pertinent factors which I should like to mention at this time: (a) the influence of new watch products, and (b) the growing size of the market for inexpensive timepieces.

Item (a): For many years there has been a decided market trend in the direction of watches containing special features such as self-winding movements, calendar watches, alarm watches, chronographs, stopwatches, and so forth. Although this trend has been going on for many years, even today virtually none of these movements is produced in the United States. There is not, for example, a single company which manufactures ladies' self-winding movements. No domestic firm manufactures calendar watches, alarm watches, or any of the other advanced types and designs featured by the Swiss.

At the present time, about one-third of all jeweled watch imports are composed of movements containing special features which are not produced in the domestic watch factories. I should like to take just a moment of the subcommittee's time to show you some of the products which are being offered for sale by our company this year. I think this will give you a rather clear understanding of why the public has found these unusual products to be so attractive, and why

we have emphasized new designs and special feature movements in our sales for several decades.

I will only take a couple of minutes, because I know that time is of the essence. The purpose of showing you these types, and I will take but a few minutes, is to indicate the many types of advanced watches, advanced features, and advanced technology which the Swiss have and which are not produced domestically.

Let me take just a few at a time. Here is an automatic watch, not only automatic but it gives you the date.

Here is a watch which is a chronometer; namely, it has an observatory bulletin with it attesting to its accuracy. It has been painstakingly adjusted and keeps time to extremely close tolerances under various conditions. Here is the specific bulletin which comes with it. You can correct to the exact time by referring to your bulletin.

Here is a chronograph watch. This watch tells the hours, minutes, and seconds, and it has a second hand which also accumulates separately from the hours, minutes, and seconds. You can stop it, and you can then turn it on again, and so forth. It has many uses in sports timing, in timing for industry, and so forth.

Here is a watch which we produced in about 1930. It is called the Lindbergh-Weems second-setting watch. It was designed by Colonel Lindbergh and Commodore Weems of the Navy, then the embryo Navy Air Force, and it can tell time to the second, what we call a second-setting watch. This is rather an elementary type, but Colonel Lindbergh and Commodore Weems told us they went to several domestic manufacturers to try to get them to make it, and they would not bother with it; and they came to us, and we made it. You can set the time by the radio beam, which was the way to do it in those days, to the exact second.

Here is another watch designed by Colonel Lindbergh for navigation. It is called a Lindbergh second-setting watch, and it is a rather complex device. It has several dials. It is for navigation in the air. You have got to be able to read your time very quickly.

Here is a watch which tells hours, seconds, and minutes, but also tells you the date, the day of the week, the month of the year, and tells you the moon phases, if that is of interest to you.

Here is a watch that tells the time all over the world. It is valuable to some people. A fellow who runs a broadcasting world network, like CBS, and who wants to bring his boys in on time, has to know what time it is in Bangkok, and so forth. It tells you the time of every important city in the world.

Representative TALLE. Do you have a device for getting 24 hours of work into 8 hours? [Laughter.]

Mr. CARTOON. Here is a watch, this is an automatic watch, but as you see, it has no apparent winder at all. And it also shows you, which is very important in an automatic watch, the amount of reserve power in the main spring. This is very important. Automatic watches are not much good unless you know how much reserve power there is in the mainspring. It is somewhat like having an automobile without a register on your gas tank.

Here is a watch that is an alarm watch. It tells seconds, minutes, and hours, but also has this setting. It will ring right in the middle of an important conference. It will wake you up in the morning.

Senator DOUGLAS. It is a good thing to give to Senators in the course of their speeches. [Laughter.]

Representative TALLE. Are these watches home manufactured, or imported?

Mr. CARTOON. These movements are all manufactured in Switzerland. The cases and the entire completed watches are assembled in the United States. These movements are all manufactured in Switzerland.

I am attempting to indicate—

Representative TALLE. How many jewels do they carry?

Mr. CARTOON. Seventeen, practically all of them—I will show you one that has a few more—we are limited by the \$10.75 duty to 17 jewels.

Senator DOUGLAS. They are 17 when they come over. How many jewels do they have when you sell them?

Mr. CARTOON. The same 17 jewels; there is practically no increase in the jewelwing of watches imported from Switzerland.

There is very little—I am trying to indicate in this discussion that there is a technological lag between, let's call it, the advanced power-steering, power-brake "automobile" of the Swiss watch movement, and the more or less conventional, 1930 automobile of the American manufactured watch movements.

I am not trying to show anything beyond that point: simply that there is a technological lag here, and that is the reason why the Swiss movement, assembled and made into watches by American firms like ourselves is a more advanced product. I want to emphasize that we are an American company—a publicly-held company owned by American stockholders. We have seven or eight hundred American stockholders. We are on the American stock exchange and we are a completely American company from stem to stern, and we utilize watch movements which are made in Switzerland.

Here are some other watches I would like to show you. Here, if you like to tell time on your finger, is a ring watch.

If you want to tell the time on opening the door at home, if you don't want to catch what-for for getting home too late, there is one here on this key.

If you'd like to tell time on your cuff, here is a cuff-link watch. This is ingenuity that sells watches, gentlemen. I am trying to point that out, too.

Here is a watch that might interest you. This is also made in Switzerland. It is one of the thinnest watches made in the world. It takes a lot of technological know-how. There is not only a watch movement in here, but a case, a dial, a glass, and even some oil.

Here is a little coin, but you say, "How can you tell time with a coin?" Well, there is a watch movement in that.

This is a wristwatch, which is exceptionally thin. People want these things. Men like them. The thickness of their watch interests them. A lot of people like these unusual watches.

Here are watches that you would call luxury watches, but they are built around very small movements. See the size of this movement. Of course, the watch movement is a very small part of it; this is a piece of jewelry, actually. But they are all very small and attractive, and people like them. You will notice the winding stem is hardly visible on this, because it is on the back, and it makes a more beautiful design than a similar watch with a sidewinding stem.

This is a watch, too. It is the smallest watch in the world. It tells moderately good time.

Here is a prototype; though I hesitate to show it, this is an alarm watch. It is just a prototype. It is an alarm watch, but it is also an automatic watch. It is a combination of both, and considering all the mechanism in it, it is rather small.

I want to show you one other thing to indicate Swiss technological know-how. This is a clock which is in essence something between a watch movement and a clock movement.

Representative TALLE. Pardon me, Mr. Chairman.

While we are on the specialty watches, will you tell the committee the approximate percentage of sales, of your total sales, that is represented by these specialties?

Mr. CARTOUN. Yes.

Well, we have a subsidiary called Vacheron et Constantin-Le Coultre, and they do several million dollars worth of business. All their business is done in this special line. That is a complete operation devoted to these specialties.

Representative TALLE. Of the total sales?

Mr. CARTOUN. Yes.

The total of our company sales, I would say that including these thinner and smaller watches that are not made in this country, I would say that anywhere from a third to 40 percent of our sales are represented by special things that are not manufactured in this country.

Representative TALLE. That amazes me, because I understood the percentage would not run beyond 2 or 3 percent.

Mr. CARTOUN. You are talking about the total sales of our company. I am with the Longines-Wittnauer Watch Co., and that is what I was answering. I would not be able to answer as to the total industry, except that we have indications that about a third of the watch movements imported into the United States have some special features—automatics, or either they are smaller or thinner, or with calendars—all of these specialties.

Representative TALLE. Do any of the witnesses have a percentage figure for total sales in the industry, insofar as the specialties are concerned?

Mr. LAZRUS. Only in the sense that we know what the imports are, and there has been a decided increase from year to year on specialty items. Self-winding watches have become a very strong segment of the sales of watches.

In our own case, too, the Benrus Watch Co. sells a lot of alarm watches and a lot of calendar watches. It depends a great deal upon the activity of each individual firm in the area in which he finds himself.

Frankly, if we were permitted to make a thorough exhibit of the watch industry and the many facets thereof, so far as the Swiss industry is concerned, it would just simply amaze you gentlemen to see the ingenuity that these people display.

There has been a great growth in the importation of low-priced watches within the last few years, that has been brought about by the tariff increase.

Representative TALLE. Are these adornments, these specialties, made in this country?

Mr. LAZRUS. No; they are not.

Representative TALLE. I see.

So that these refinements and adornments are parts of these watches as they come into this country.

Representative BOLLING. You mean the jewels?

Mr. LAZRUS. If you mean the jewels or diamonds on the cases, I would say all the cases are made here, with very few exceptions.

Representative TALLE. I had in mind the interesting shapes, the very small—

Mr. LAZRUS. These are all the designs of the Swiss. They are not made domestically.

The watches that we show here this morning do not have a counterpart in America except for some self-winding watches which have recently been made by just one concern here.

Representative TALLE. You show them as they are when they come into our country?

Mr. LAZRUS. No. The cases have been made here. We are speaking now of the calendar device, the self-winding device, the size of the movement, alarm device; that is all Swiss. The cases, the way they are styled, that is all American.

Representative TALLE. The adornments with jewels, and so on?

Mr. LAZRUS. That is done in America; yes. That is done in America. They are not brought in with the diamonds in them.

Representative TALLE. Thank you.

Representative BOLLING. You may proceed, sir.

Mr. CARTOON. I want to show just one more device which is a scientific curiosity.

This is a timekeeping device between a watch movement and a clock movement. It runs off the atmosphere; in a way, it is a perpetual-motion device. It has a drum in it, filled with a gas, and two degrees change in temperature of the atmosphere will wind the mainspring. The mainspring works off this drum, it goes in and out for the day, and this thing keeps exceptionally good time. This is another example of the high degree of technical skill of the Swiss in horological arts.

I will resume my prepared statement, if I may.

Representative BOLLING. Proceed, sir.

Mr. CARTOON. I hope you gentlemen understand that if an American customer wishes to buy products of the type which I have displayed, or many other types of special feature watches, he must buy a watch containing a Swiss movement. This is the point about this thing: There is an ever-increasing demand for smaller watches, thinner watches, and special feature watches. They are just not being produced here, and this country wants them. Our customers are not attracted to these designs because they are "cheap foreign products." As a matter of fact, the average retail price of the watches you have seen is well over \$100. Customers are buying these watches with Swiss movements because they contain desirable features which are not contained in the products manufactured in the domestic jeweled-watch factories.

What the Government is actually trying to do in imposing import restrictions is to make it more difficult for the American public to

purchase these newer types of products, hoping that this will encourage the sale of the older and relatively outmoded products of the three American jeweled-watch factories. Now, when I say relatively outmoded, I mean in the technological sense. I would like to point out that a self-winding watch was made in the United States for the first time by one of the companies in 1954 but the Swiss have made self-winding watches since 1880 and there are similar analogies to be drawn in other innovations. The domestic manufacturers make very fine watches so far as they go, but they have always lagged behind the Swiss technology. Today, the simple fact is that relative to the Swiss designs, their products are in the prewar category. They have failed to keep pace with the watchmaking equivalent of automatic transmission, power steering, and other wonderful new inventions.

No one can foresee where experimentation in horological skills will lead us. It is an open secret that many firms are experimenting with electronic timepieces—not merely battery-operated products, but truly electronic devices which are powered by radio impulses or some similar device. The insides of such a movement would in no way resemble today's wristwatch. There would be no hairsprings, no balance wheels, escapements, or other devices found in current products.

The watch of the future may well have magnetic coils, resistors, transistors, and other component parts found in the electronic industry, rather than in today's watch industry. Once perfected, they may well be far simpler and easier to manufacture than present timepieces. Their production would certainly require different skills and different machine tools than are found in watch plants at the present time.

In fact, it is probable that if any such developments occur—and many people believe there is a good possibility within the next decade—the companies most likely to be involved would be firms such as Bell Laboratories, General Electric, or one of the other hundreds of companies which are doing research and development in the field of miniature electronics. Under these circumstances, what would the Government do to continue the present output of conventional movements by the domestic jeweled watch industry? Is it logical that the imposition of trade barriers would solve this problem? Of course not.

It is impossible to hold back the wheels of progress, and the Government should not try to do so—particularly in the name of national security. Yet, this is precisely what is being considered at the present time under a Government policy of trying to assure the annual sale of at least 2 million watches which are not of the latest design.

(b) A second factor which has affected the share of the market controlled by the domestic jeweled watch factories has been the increased popularity of less expensive products. And this is very important.

It has never been clearly understood in Government circles that, in addition to the market supplied by Hamilton, Elgin, and Bulova and their importer competitors—such as Longines, Gruen, Benrus, Movado, Omega, et cetera—there is a completely separate and growing market for watches retailing for approximately \$15 and less.

This is a market for children's watches, young people's watches as they grow up, sport watches. A person wants to play golf and he doesn't want to use his good watch. These watches are generally marketed through department stores, drug stores, or even grocery stores, as well as some jewelry concerns which handle the better quality products.

A major distinction between inexpensive watches and those which have better grades of movements lies in the escapement mechanism. The better movements contain jeweled-lever escapements; the lower-priced products use metal escapements and are known as pin-lever watches. The Swiss also have a nonjeweled escapement movement known as Roskopfs.

Although the inexpensive watches do not generally employ jeweled-lever escapements, it is possible for them to use jeweled bearings for other parts of the mechanism, other than the escapement. Incidentally, these jeweled bearings cost only about 5 cents apiece, so they do not add appreciably to manufacturing costs. In actual practice, the American pin-lever watch manufacturers—United States Time, Timex, New Haven Clock, and many others—do not use any jewels in their movements. Competitive products manufactured in Switzerland do, however, frequently contain jeweled bearings. The number of jewels in these inexpensive Swiss movements varies among manufacturers, but generally does not exceed seven jewels. By contrast, virtually all of the better grades of imported movements, which compete with the products of the 3 domestic jeweled watch factories, contain 17-jewel movements.

The difference between the United States and Swiss design of inexpensive movements—namely, the fact that the pin-lever watches produced in this country contain no jeweled bearings while their Swiss counterparts contain a few jewels—has an important bearing on figures pertaining to domestic production and imports of jeweled watches. The domestic production of inexpensive pin-lever watches is not included in the United States jeweled watch production figures, but imports of directly competitive Swiss products are included in statistics concerning jeweled watch imports.

I should explain that the Treasury Department through the Customs Bureau maintains total figures on imports of movements containing jewels. Now, many movements that are imported of the pin-lever or Roskopfs type, which contain a few jeweled bearings are incorporated in the figures without distinction as to whether the movements are jewel-lever or pin-lever.

The importation of these inexpensive pin-lever and Roskopfs movements, containing a few jeweled bearings, has increased considerably within recent years for many reasons, and now is approximately equal to the importation of 17-jewel movements.

It is clear that these low-jewel pin-lever and Roskopfs movements do not compete with Elgin, Hamilton, and Bulova, whose watches generally sell for more than \$30, and up into the hundreds; nor are they competitive with the better grades of imports, such as products of my company. Hence, comparisons between the domestic production of jeweled watches and the import statistics which include these

low-jewel movements are clearly deceptive. A proper comparison would be limited to imported movements which are truly competitive with the products manufactured by the three domestic jeweled watch companies.

In order to do this, import statistics should not include (a) movements containing special feature watches which are not manufactured in the United States or (b) low-jewel, inexpensive pin-lever and Roskops movements which are not competitive with the domestic movements manufactured by Elgin, Hamilton, or Bulova. If this were done, it would be seen that the domestic manufacturers certainly enjoy at least 50 percent of the market in which they are directly competitive, rather than the 20 percent figure which they claim.

The American movement manufacturers could very well expand their sales, and obtain a greater percentage of the overall jeweled watch market, by modernizing their designs and their technology so that they are in a position to manufacture special feature watches and other types and models which are competitive with the Swiss, and which American consumers obviously desire. Curtailing imports would not bring about this result: On the contrary, it would simply encourage the American factories to stand pat and assume that the Government will support their technological lag through subsidies, quotas, or other protective devices.

RESULT OF GOVERNMENT EFFORTS TO CURTAIL IMPORTS

Since the Office of Defense Mobilization filed its report on the essentiality of the jeweled-watch industry, in June 1954, watch importers have been continually threatened by a stream of actual and potential Government actions, all taken in the name of the national security. For example, only last week a bill was introduced in the House of Representatives, at the request of the Treasury, which would impose an unprecedented \$8 processing tax on each imported movement which is remanufactured in this country so as to raise the jewel count above 17 jewels. The Treasury's stated purpose was to maintain an artificial monopoly for the three domestic manufacturers in the high jewel watch market, on the pretext that this would aid national defense.

This subcommittee may be interested in the results of the 50 percent increase in tariffs and other protectionist actions on both the importers and the domestic manufacturers.

Appendix B presents the monthly importation of jeweled watch imports into the United States for 1953, 1954, 1955, and the first 2 months of 1956—the latest available figures. It also shows the breakdown for imports of 17-jewel movements, which are the watches that directly compete with the domestic watch manufacturers.

(Appendix B is as follows:)

APPENDIX B

United States imports of jeweled watches

	Total imports				16-17-jewel imports			
	1953	1954	1955	1956	1953	1954	1955	1956
January.....	748,506	582,926	469,689	641,552	507,975	361,853	249,729	290,552
February.....	864,296	825,196	652,656	792,343	575,392	524,171	378,938	382,666
March.....	1,094,561	791,929	685,031	-----	709,050	523,917	344,419	-----
April.....	914,249	708,903	710,095	-----	604,411	444,057	383,483	-----
May.....	922,432	661,236	866,039	-----	612,472	411,475	485,701	-----
June.....	1,059,409	851,009	913,403	-----	690,789	545,917	521,938	-----
July.....	1,127,361	1,026,571	769,573	-----	701,629	648,174	445,211	-----
August.....	972,429	1,178,916	730,799	-----	553,324	610,425	351,834	-----
September.....	1,522,416	1,921,821	1,113,894	-----	940,986	1,566,429	584,281	-----
October.....	1,531,570	1,041,626	1,421,556	-----	904,348	589,879	699,407	-----
November.....	1,584,157	1,194,753	1,487,406	-----	982,707	639,021	713,109	-----
December.....	1,025,735	700,526	1,035,275	-----	648,825	351,294	460,771	-----
Total.....	13,367,121	10,485,412	10,853,416	-----	8,431,908	6,216,612	5,598,821	-----

1 Effective date of 50 percent tariff increase.

NOTE.—(1) Total imports during 18 months following tariff increase (September 1954 to February 1956) 16,146,037; (2) Total imports during 18 months prior to tariff increase (March 1953 to August 1954), 18,391,005; (3) 17-jewel imports during 18 months following tariff increase, 8,418,662; (4) 17-jewel imports during 18 months prior to tariff increase, 11,418,530.

Dollar value of United States jeweled watch imports

	Total imports			
	1953	1954	1955	1956
January.....	\$4,218,489	\$3,274,767	\$2,328,028	\$2,852,268
February.....	4,717,863	4,544,563	3,348,300	3,449,044
March.....	5,939,314	4,471,419	3,173,714	-----
April.....	5,032,087	3,920,239	3,557,966	-----
May.....	5,063,330	3,687,242	4,180,581	-----
June.....	5,816,550	4,663,027	4,395,033	-----
July.....	5,889,507	5,322,092	3,720,025	-----
August.....	4,561,252	5,227,630	3,253,805	-----
September.....	7,895,132	14,878,224	5,176,984	-----
October.....	7,685,353	5,190,557	6,440,406	-----
November.....	8,279,104	6,062,453	6,405,359	-----
December.....	5,596,832	3,353,039	4,472,442	-----
Total.....	70,694,818	54,495,252	50,458,643	-----

1 Effective date of 50 percent tariff increase.

NOTE.—(1) Total dollar value of imports during 18 months following tariff increase (September 1954 to February 1956), \$76,244,228; (2) total dollar value of imports during 18 months prior to tariff increase (March 1953 to August 1954), \$96,769,445.

Mr. CARTOUN. I would like to recap that briefly:

(1) During the 18-month period after the 50 percent increase in tariffs became effective—September 1954 through February 1956—total jeweled watch imports dropped by 2,234,968 units or 12.2 percent compared with the 18-month period which preceded the 50 percent increase in tariff.

(2) During this same period, imports of 17-jewel movements dropped by virtually 3 million units or 26.3 percent.

(3) During this same period, dollar value of all jeweled watch imports from Switzerland dropped by \$20,525,217 or 21.2 percent.

The 18-month figures following the tariff increase include two Christmas seasons, when sales are heaviest; the 18-month period prior

to the tariff increase contains only one Christmas period. It makes quite a difference in the figures. Therefore, these figures do not reflect the full impact of the 50 percent rise in duties. A better comparison is seen by using the calendar years 1953 and 1955. This also minimizes the effect of any inventory fluctuation that may have occurred in 1954, before and after the tariff boost.

(4) During the calendar year 1955, there was a decrease in total jeweled watch imports of 2,513,705 units or 18.8 percent, compared with 1953.

(5) In 1955, imports of 17-jewel movements were 2,833,087 units below 1953, a decrease of 33.6 percent.

(6) Dollar value of all jeweled watch imports from Switzerland dropped by \$20,236,175 or 28.6 percent from 1953 to 1955.

These figures and charts illustrate several rather interesting and dramatic points. First of all, they show that the injury inflicted by various types of Government action has been serious, and has resulted in genuine hardships both on Switzerland and on many American importer-assemblers. It must be remembered that during this period of decline for the watch importer-assembler industry, the general state of the American economy was booming. Our industry, thanks largely to Government action, suffered a reversal of this national trend.

These figures also indicate that during 1955 there was a reduction in 17-jewel imports of 2,833,087 units compared with 1953. These are the imported movements which are competitive with American-made jeweled watches. It would appear, therefore, that if the claim of the domestic manufacturers is correct—that they were being injured by imports and that their operations could be substantially improved by curtailing foreign competition—then their 1955 output should have increased sharply to offset the dramatic drop in imports during the previous 2 years.

Now what actually happened? According to their own figures, their production was 2.3 million in 1953, 1.7 million in 1954 and less than 2.0 million in 1955. This proves exactly what we in the watch importer-assembler industry have always claimed: Government intervention designed solely to reduce imports cannot further the production and sale of additional domestic watches.

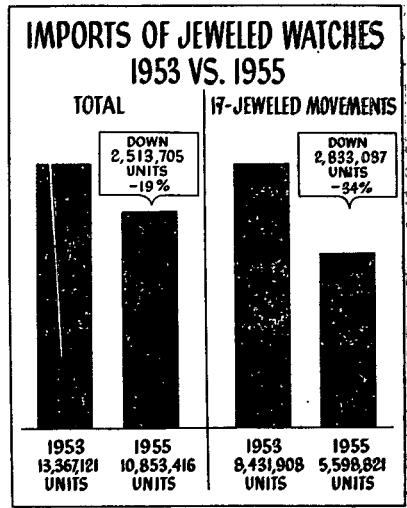
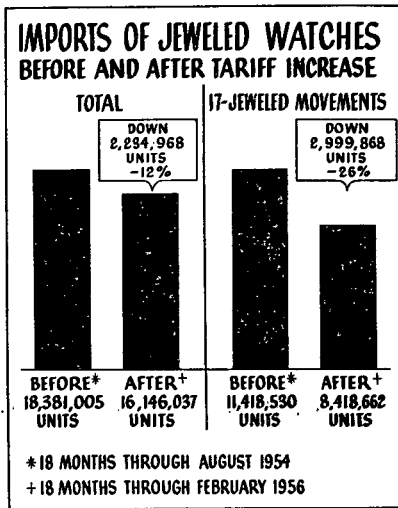
If Government intervention which has been largely responsible for the decline of nearly 34 percent in directly competitive imports has failed to solve the problems of the domestic watch manufacturers, it is fair to ask: Will additional Government intervention aimed at further curtailing imports prove any more effective? Will the imposition of a quota on movement imports solve anything? Will higher tariffs, either through a direct increase in rates or through an indirect increase such as a change in customs regulations provide any real help to the domestic manufacturers?

In our considered judgment the answer to all of these questions is clearly and emphatically "No." The lag in the engineering technology and know-how of the domestic manufacturers cannot be helped by a policy that deters imports and minimizes competition.

Just before I close, Mr. Chairman, I would like to say that our company, too, during the Second World War, produced a great many precision products here in the United States for which we were not

equipped before the war started, and I just will run down a few of them. We produced, during the war, over \$6 million of precision products on direct contracts with the Government and its Armed Forces, especially the Air Force. These included 50,000 aviation clocks for airplanes; 16,000 turn-and-bank indicators for airplanes; 6,000 air-speed indicators; 1,300,000 pocket-type compasses; 1,000 phototimers; and many other devices.

Mr. Chairman, as we have stated before, if the Government believes that for any reason it is essential to the national security to maintain certain horological skills, this can only be achieved through direct action aimed at meeting the basic problems of these companies. It cannot be achieved through the indirect device of attempting to curtail imports. Imposition of restrictions on trade will not only fail to cure the problems of the domestic watch factories; it is certain to weaken our total national security by disrupting our economic relations with other free nations.



May I just call your attention to those charts. The first chart shows imports of jeweled watches for 18 months before and after the tariff increase. On the left-hand side of this chart are the total figures, including the Roskopfs and pin-lever movements, and on the right-hand side of this chart are shown the figures on 17-jeweled movements. These show that the 17-jeweled movements are down by approximately 26 percent. On the second chart we have the figures for 1955 compared with 1953 showing on the left-hand side, the total jeweled watch

imports, and on the right-hand side the 17-jeweled movements which have been adversely affected by 34 percent.

Thank you, Mr. Chairman.

Representative BOLLING. Thank you, Mr. Cartoun.

One question before I call on other members. Can you let us have the source of the data in your appendix for the record?

Mr. CARTOUN. Yes. Standard & Poors statistics was the source for all the financial data on the three domestic watch companies. The Bureau of Customs of the Treasury Department was the source for the import statistics. The figures on domestic jeweled watch production came from the Tariff Commission for years prior to 1954, and from the domestic manufacturers themselves, for figures on the past 2 years.

Representative BOLLING. Congressman Talle, do you have some questions?

Representative TALLE. Yes, Mr. Chairman.

Have you discussed this matter with the United States Treasury?

Mr. CARTOUN. We have had several meetings with the Treasury, yes, sir.

Representative TALLE. Have you made any suggestions?

Mr. CARTOUN. Which matter are you referring to?

Representative TALLE. Perhaps I had better ask you this. Are you for or against the two bills that were introduced in the House? One is No. 11436 and the other is 11437.

Mr. CARTOUN. I am against them. Our company has never imported any movement which it has subsequently remanufactured. But I am against them because I believe these bills are contrary to the right of a domestic company to refashion its merchandise after import into something which it thinks would be either more salable or perhaps better. I am against it for that reason, on principle, although my company has never remanufactured any watch movement in this country.

Representative TALLE. Is the tariff legislation that you refer to in connection with this problem, the Tariff Act of 1930—

Mr. CARTOUN. Correct.

Representative TALLE. Is it not true that the difficulty that is complained of is of rather recent origin? For many years there was no difficulty but more recently there have been large importations.

Mr. LAZRUS. May I pick that up? I am much more interested in it.

The remanufacture of merchandise in the United States, of watches, is not new. As long ago as 1933, this matter was litigated in the

courts, and the courts held that it is proper and right for people to remanufacture their merchandise if they so choose.

There is a prohibitive duty on watches of more than 17 jewels, \$10.75. That is a prohibitive duty and, frankly, I don't know any reason why this area of merchandise should not be competitive like any other area.

Representative TALLE. That gets exactly to the point. The heart of the matter is that these bills are intended to close a loophole. One of two things will happen. If these bills are enacted into law, the loophole will be closed, perhaps, since the bills deal with what is called up-jeweling. Now, the other thing that will happen, if the loophole is not closed, is that the tariff actually paid will not be \$10.75 but it will be \$3.85. One or the other will happen.

Mr. LAZRUS. That is not exactly so, either, because there is a misconception, I think, a misunderstanding on this whole question.

In the first place, the remanufacture of this merchandise requires considerable skill and it is quite costly. It is not just a simple operation. The domestic companies, speaking now of those people who manufacture watches in the United States, have testified that it only costs them 20 to 30 cents to make a 21-jewel watch instead of making it with 17 jewels. For that 20 or 30 cents in cost, to the domestic manufacturer—I will say it is 30 cents—we would have an imposition of \$8 worth of duty for that 30-cent difference in cost admitted by the domestic companies. Do you think that is a fair rate of duty to have imposed on an item? I am going to tell you that this is due to the fact that we have on our books, on our dockets, a law which reflected the thinking of the domestic watch manufacturers during the Smoot-Hawley days, a pretty bad law by the way, too. It was written not by the Congress, but by our competitors. I was in the watch business at that time. We were restricted and duties were placed on the importation of watches and it resulted in practically every watch company going into bankruptcy, the domestics and importers, together.

Business dropped to practically nothing, not only the watch business but many other businesses, and an important part of the cause of that is the Smoot-Hawley bill of those days.

However, we do have that basic law, with some amendments, still on the docket. Now, in order to overcome this change in the technological skills that made it possible to produce a watch of more than 17 jewels for 30 cents more than it cost to make a 17-jewel watch, the importers tried to take a 17-jewel movement and remanufacture it. In fact, the firm that is now making the loudest noise about this was the one that was brought before the courts by the Treasury Department in 1933, and he was doing practically nothing but changing his watches, the jewel count of his watches, at that time. He was then not a domestic manufacturer. The courts held that he had a right to do it. It is not unusual for people to find ways and means to remerchandise and remanufacture what they import from abroad. Once the merchandise comes here, one can do with it what he chooses.

The watches that are now imported into this country and are remanufactured come in as 17-jewel watches—running 17-jewel watches not designed for anything but 17 jewels. It takes a great deal of technological skill, and involves substantial cost, to change the jewel count. We are one of the firms that do it and I welcome and invite all of the members of this committee or anybody else who is interested

to visit us and see how much time and effort and work it takes and the skill which is required. I will be glad to show them our cost cards which show that the cost runs, depending upon the different types of movements, from \$2 to \$3 apiece. We employ lots of labor to do it, and to stop us from doing it, with the restrictive duty such as we have, is in my judgment quite ridiculous. If they want to change the law and see that we do not import watches at 17 jewels and make the changes, let's make the tariff \$5. Let's cut the tariff in half. Let's make it competitive. I don't ask them to just add 30 cents to \$3.70. Let them add more than that. Let them make that \$4.37, \$5.50, or some reasonable figure so that we can compete in all fields as they are able to do with us.

Mr. CARTOON. May I add one thing. Despite all the hullabaloo about this, it is my belief that there isn't any more than between 1 and 2 percent of the movements which are imported, if that many, which are remanufactured, and I don't think it has any impact whatever. Those movements that are remanufactured in the United States have virtually no impact on the market.

Representative TALLE. Then my question is, if the matter is so small, why are you fighting it?

Mr. CARTOON. We just don't believe that that is a good basis for the proposed legislation. It would deprive us of rights which all importers of all merchandise have always enjoyed.

Mr. ANDERSON. I would like to add something to this. I think, in the first place, I would like to say that the extreme complexity of this problem is one of the reasons why we stated earlier in the morning that we would like to file a rather extensive statement about this subject of so-called upjeweling which was raised by Dr. Bidwell yesterday. We can spend the rest of the morning on this subject without any difficulty at all because of its complexity.

There is one thing I would like to say, however, and that is that the bills to which you refer, which have been introduced in the House, are, by the admission of the Treasury Department, designed to negate a Treasury decision which they have recently made pursuant to a paragraph in the Tariff Act which was passed in 1930. I would like to read that paragraph of the 1930 act because it is very short and significant:

Any of the foregoing—
that is, any watches—

constructed or designed to operate for over 47 hours without rewinding, or, if self-winding, or if self-winding device may be incorporated therein, shall be subject to an additional duty of 75 cents.

Now, the clear implication of that paragraph in the 1930 act is that Congress visualized the distinct possibility that watches of 17 jewels would be imported which were specifically designed for later incorporation of a self-winding device in them after importation. The provision I have just quoted specifically put a separate duty of 75 cents on them if you imported them.

Now, the Treasury has recently confirmed—in this T. D. which I have a copy of and I will put in the record—that the 1930 act permits separate importation of 17-jewel movements specifically designed for having incorporated in them a self-winding mechanism later, and that this has been legal since 1930. So there is no question of any loop-

hole here. This is something that has been in the act since the very beginning.

Now, if the Treasury has been persuaded by someone—

Representative TALLE. On that, Mr. Andersen, isn't it true, though, that it wasn't a problem until recently when the importations increased a great deal?

Mr. ANDERSON. Importations of movements designed to have self-winding mechanisms in them later? Is that what you are talking about? No. There have been very small amounts over the years. I understand that a small shipment which cleared customs recently consisted of a sample movement by one of the importers to get a Treasury ruling and, as a matter of fact, most of the Swiss watch manufacturers who have contemplated the possibility of engineering their watches in such a manner as to bring 17-jewel movements in separately and self-winding mechanisms in another shipment, have been frightened at the well-known fact that the Treasury has now changed its mind and wants to have this process stopped. The stopping of this process, which has been legal since 1930, is the principal reason why the Internal Revenue Act in this case is being used to change the Tariff Act as proposed by those two bills.

Representative TALLE. Well—

Mr. ANDERSON. It is a little complicated, as you can see, and that is why I really thought we would try to get in the record the facts here.

Representative TALLE. This is becoming complicated indeed. At one moment I am told it is unimportant and the next moment I am told that the gentlemen insist on doing what the Treasury doesn't like to have done.

The Federal Government, of course, must enforce the law. Whether the loophole was there from the beginning or not is of no consequence. Some of these things aren't discovered, you know, the day after the act is passed. The complaint, as I understand it, is that watches come in with 17 jewels or less and the tariff is \$3.85. Then they are upjeweled beyond the 17 jewels and on such watches the tariff should be \$10.75.

Mr. ANDERSON. We have to make, I think, sir, a distinction between what you have just said, which is a 17-jewel conventional movement not engineered for later incorporation of anything, and then having some jewels added in the United States. That is one kind of a problem. This is, as Mr. Lazarus has pointed out, a very insignificant thing, and it is a right which has always been and is enjoyed by every importer of every other single commodity in the United States.

On the other hand, I think we have to make this distinction. The incorporation, as pursuant to paragraph 367 (a) 5 in the Tariff Act that I read you, the incorporation of a jeweled self-winding mechanism imported as such is a subassembly. There is no upjeweling there because that jewel comes in from Switzerland as a part of a subassembly pursuant to another section of the act (367 (c)) which is all part of the act, and the Treasury, as I say, has recently approved this process.

Representative TALLE. May I ask you, have you had negotiations with the Treasury about this matter?

Mr. ANDERSON. I don't know that you would call them negotiations. They have been courteous to us and have given up copies of the bill

for comment before it was introduced: We have made comments very vigorously opposing the bills for the reasons which I have previously summarized this morning, and which I will more extensively summarize in the report that the chairman has agreed I may file.

Representative TALLE. I know you will agree it is the business of Government to enforce the law as it is, and if they find it is defective, it is the business of Congress to remedy the defect.

Mr. ANDERSON. I agree with that as a principle, of course. The Treasury is enforcing the law as it stands. They have recently confirmed by the T. D. which says this is completely legal and it has been so since the beginning. If the Treasury feels that the Tariff Act is defective, it is my contention they should attempt to amend the Tariff Act and not use the Internal Revenue Code to put a processing tax on a movement after it has come in, because there is not one single processing tax in our country today except for 2 or 3 agricultural products. This will be an unprecedented act on the part of Congress and the Government as a whole.

Representative TALLE. Why do you fight these bills, which I understand are identical, and are intended to close a loophole in tariff law?

Mr. ANDERSON. Because, No. 1, there is absolutely no basis for the contention which a number of people with whom I have discussed it have in their minds, that there is a loophole in the Tariff Act which they are trying to stop. This is simply not so.

Representative TALLE. It looks like that to me.

Mr. ANDERSON. I will give you the Tariff Act if you want. It is perfectly obvious that the Congress anticipated it because they provided a special duty for watches specifically designed to have a self-winding mechanism incorporated in the movement later. That is not a loophole and I think no sensible man can maintain that it is.

Secondly, to attack anything in the Tariff Act—

Representative TALLE. You are passing judgment on me, now.

Mr. ANDERSON. I intend to.

Representative TALLE. I don't resent it. It is quite all right.

Mr. ANDERSON. Secondly, to utilize a completely unprecedented procedure of an internal processing tax on a nonagricultural product, for which there is not a single precedent, as a means of amending the Tariff Act is, in my judgment, bad legislation.

Representative TALLE. Mr. Chairman, I may have taken more than my share of time. I have finished, thank you.

Senator DOUGLAS. Just one question. Eliminating the self-winding feature of the watch, does the addition of this further number of jewels really add to the efficiency of the watch or is it so much eyewash designed to give the watch greater sales?

Mr. LAZRUS. Mostly eyewash.

Mr. ANDERSON. I would like to add one point.

Senator DOUGLAS. Wait a minute. I'll come back to your point.

Mr. LAZRUS. Mostly eyewash.

Senator DOUGLAS. In other words, the consumers feel that a 23-, 24-, 25-jewel watch is—

Mr. LAZRUS. I would say self-winding—

Senator DOUGLAS. Ruling that out.

Mr. LAZRUS. Most of them aren't 25. They are usually 21.

Senator DOUGLAS. The 21-jewel watch is really not any more efficient?

Mr. LAZRUS. It does add slightly to the efficiency.

Senator DOUGLAS. It is more salable.

Mr. LAZRUS. That is it—more salable.

Senator DOUGLAS. In other words, not just the touch of garlic which redeems the soup but really a surplus. I would say that if these hearings do nothing more than spread those words abroad through the country—

Mr. LAZRUS. We won't be able to spread it far enough.

Senator DOUGLAS. It would be a great contribution because it would remove very largely the object of dispute. There would be no further advantage if we can reduce the 21- or 23-jeweled watch to the same level as the 17 in popular credence because then the reason for all this battle disappears. And Paris will not run away with Helen and the Trojan War will not begin.

Mr. LAZRUS. May I point out that during the period when there was supposed to be a large flow of imported watches being upjeweled—that was a year ago because since then the number of watches being upjeweled have declined considerably—the domestic manufacturers succeeded in selling more watches with more than 17 jewels, as was testified only yesterday, whereas the sale of imported watches, despite upjeweling has sharply declined. So that we didn't find that we stimulated our business a great deal through the importation of watches which are converted to higher jewel counts. I hope I am clear.

Senator DOUGLAS. What did you do?

Mr. LAZRUS. We feel—I am speaking now for the Benrus Watch Co.—we feel that we must be prepared to compete in every area in which merchandise is offered because we never know in the very rapid market in which this country exists in all trades where that market is going to flow tomorrow.

Senator DOUGLAS. In other words, the 21-jewel watch has much greater prestige than the 17-jewel watch even though—

Mr. LAZRUS. It may have. I don't believe it has yet attained that but it may attain it. It would be a very unfortunate and unfair thing if, with the restrictive \$10.75 duty on high-jewel watches, they were to put in this bill that has been offered restricting and confining to just the three domestic manufacturing companies the whole market for popularly priced high jeweled watches. I can think of nothing that would be more unfair than their having this market completely to themselves.

Senator DOUGLAS. Aren't you fighting about something that doesn't really amount to anything so far as the consumer is concerned?

Mr. LAZRUS. That is correct.

Mr. CARTOUN. Except that the consumer is gullible and doesn't know whether a 21-jewel watch is or isn't a better one.

Senator DOUGLAS. This is a battle for the credulity of the consumer.

Mr. CARTOUN. Let's say it is a battle against the ignorance of the consumer.

Representative TALLE. Mr. Barnum should be here.

Mr. ANDERSON. I have only one thing to add to the question posed, by the Senator from Illinois.

He has ruled out the question insofar as automatic watches are concerned. I think the case is reasonably clear that a jeweled self-winding mechanism will last longer because in the self-winding mechanism you get the greatest degree of movement in the watch of all. When I

got interested in this, being a layman, I asked the question you asked. What is really the optimum number of jewels a first-class watch ought to have? I asked it of quite a lot of people, including a lot of Swiss. I got about a 50-50 break. Some say you can't possibly make a case for more than 15. Some say you can make a marginal case for 17. I have never found one yet who says you can make any case for over 17 except for the self-winders.

Mr. CARTOUN. Except in self-winding.

Mr. ANDERSON. Only in self-winding.

Mr. CARTOUN. That is where extra jewel bearings are required.

Representative CURTIS. I would like to ask Mr. Lazrus a couple of questions about their technical training.

Can Americans go to the Swiss horological schools?

Mr. LAZRUS. I really don't know.

Representative CURTIS. I have heard stories that the Swiss are pretty jealous of their skills and I notice you paid attention in your statement to the very fine school system they set up for developing horological skills and I was wondering if they confine that to their own people.

Mr. LAZRUS. I will be happy to find out and give you a direct answer, to yourself and the committee.

Senator DOUGLAS. May I say we have a very good school in Peoria. We will be very glad to welcome any students there.

Mr. LAZRUS. That is not the type of horological school of which I speak. They teach watchmaking. We are speaking of watch manufacturing, which is an entirely different art.

Representative CURTIS. Watchmaking is part of watch manufacturing?

Mr. LAZRUS. It is an entirely different area of skill. The watchmaking school here is really concerned with the teaching on watch repairing. It is not devoted to the art of watch manufacturing and watch design.

Incidentally, I have gotten an answer to your earlier question already, because there is somebody here competent to give me the answer, on our staff. He tells me that Americans have gone to the Swiss schools.

Representative CURTIS. And that would be true, too, for other foreigners?

Mr. LAZRUS. I suppose if Americans have gone, I guess others can go.

Representative CURTIS. If you could give any further information, I would be interested.

I notice you say there is very little education in our schools in the horological field of skills. Are there any industry schools conducted within the industry itself or how—

Mr. LAZRUS. Only within the area that I spoke of, of watch repairmen. Men who study and learn how to repair watches, not within the area of the manufacturing of watches, not within the engineering and designing and the making of machines. The skills that the domestic manufacturers, as I understand it—

Representative CURTIS. That is the question I am getting to.

Mr. LAZRUS. I was just going to tell you how they do. They have taken a great deal of pride, each of these companies, in the fact that

they are completely self-contained. There are three companies. There used to be four. And they take great pride in the fact that they make everything themselves. That they buy nothing from any subcontractor, they don't work like the automobile companies do, buy 50 percent of their automobiles from subcontractors. They don't work like the airplane companies. They make the motor, they make every part of the watch.

Representative CURTIS. May I interject there? Does the Swiss company manufacturer do differently than that?

Mr. LAZRUS. Completely different. He uses many subcontractors. I, as a manufacturer in Switzerland, buy all my different ingredients in that watch to my specifications from all the different sources, and each part comes from a different source. A man who makes our big wheels doesn't make anything but wheels of that type. The man that makes escapements only makes escapements. The man who makes only balance wheels, makes only balance wheels. When I say a man, it isn't just one firm. All the different parts are made by several different manufacturers.

Senator DOUGLAS. That means that it is in a sense what is termed "a domestic manufacturing system." Very small firms—

Mr. LAZRUS. Very small firms. As a matter of fact, we are members of the FH. There are 600 members of the FH. Some of them are so small as to be, well, you probably wouldn't consider them a firm in America. They have only a few workmen. They have only a small staff. But they do introduce a great area of competition of new ideas and new technology into the Swiss watch industry which is not found in the United States.

Now, getting back to the matter of each of the three American manufacturers being self-contained in the development even of the machinery which they use, even this is made within their own plants. The development of the skills within that plant—

Representative CURTIS. Now you are talking, again, about the Americans.

Mr. LAZRUS. Yes. They do that all within their own plants. They don't even transfer from one to another in any great degree. I have never heard of any too much loss of help because one is stolen from the other.

Representative CURTIS. Let me interject so I can follow this. What sort of a union setup do they have?

Mr. LAZRUS. Two of them are unionized firms. The Hamilton and Elgin companies are unionized. They have an independent union.

Representative CURTIS. What sort of an apprentice system do they have?

Mr. LAZRUS. They have a system within their own firms, as I understand it—I am not an expert on my competitors' business.

Representative CURTIS. I appreciate that, Mr. Lazrus. The sole purpose—

Mr. LAZRUS. The Bulova Watch Co. is not unionized, never has been.

Representative CURTIS. The sole purpose of my interrogation is that I want to find out—

Mr. LAZRUS. I want to qualify myself to the full limit of my ability. I don't want to set myself forth here as being a great expert on somebody else's business.

Representative CURTIS. I am just trying to tell you the sole purpose I have in these questions is along the lines of how these skills are developed. Any light that can be thrown on this—in light of your statement of how the skills are developed in Switzerland, how the Swiss develop their skills, because, as I understand the purpose of the subcommittee, it is to go into this basic question of the defense aspect of this thing, and the skills are the important part of it. I was interested in any light we could get on the development of the skills in our country.

Now, I notice you said that there has been no effort on the part of the domestic manufacturers to establish courses in horology, in some of the institutions of learning. Has your company or any of the importers attempted to do anything of that nature?

Mr. LAZRUS. No. We haven't had a true requirement for it, although we have considered it, because, frankly, we would be very happy to become a part of the domestic manufacturing group. We think there is great opportunity in America. Watch manufacturing is one. I am going to tell you why we have never been able to do it.

We have no sources of supply of horological skills in this country because there is no subcontracting and the only way to find men experienced in jeweled watch designing and manufacturing would be to go to the three domestic plants and try to steal these people—

Representative CURTIS. Let me interrupt. Your statement, as I understand it, said there weren't any of these skills. The presentation here was that—

Mr. LAZRUS. That is right. They are not there except within the companies, themselves.

Representative CURTIS. No, no. I am taking the broader aspect of this thing now. The point of whether these skills in our society are in any way unique, and I understand the tenor of your presentation, not necessarily yours, but I don't know which of the three were easily duplicated. Now, if that is so—

Mr. LAZRUS. In a sense they are, because good watchmaking is only good toolmaking. That is true.

Representative CURTIS. I think you have made two very inconsistent statements.

Mr. LAZRUS. There may be some inconsistency to it in a sense. I won't deny it. My point is that to begin jeweled-watch production, or any other manufacturing enterprise, it is most helpful to have men experienced in that field. However, from the standpoint of national defense, our point is that many other firms are capable of manufacturing the same type of precision equipment as Elgin, Hamilton, or Bulova.

Representative CURTIS. Believe me, I have no preconceived notions here. I am simply trying to get information and I am not trying to lead you into inconsistencies. I am trying to understand.

One of the questions I was going to ask you is why your company, in the light of this weakness in the domestic manufacturing, didn't go into domestic manufacturing and whether that was as a result of an agreement that maybe the importers have with the Swiss manufacturers.

Is that it?

Mr. LAZRUS. No. As a matter of fact, before the—when we were younger and before the Second World War, we made an attempt in

the domestic manufacturing field. Had it not been interrupted by the war and the necessity for converting to war work, I think we would have pursued it.

Since that date—I am the youngest member of the executive branch of our firm. Being 58 years old myself, my older brother being 62, and my oldest brother being 69—we haven't been quite ambitious for the growth that existed in our blood when we were much younger.

We did, however, since World War II acquire at one time 25 percent of the Hamilton Co. and hoped that we would be able to enter the manufacturing field through that acquisition. But the matter was brought to court and the court held that we were not in a position to do what we hoped.

Representative CURTIS. Of course, that would be just acquiring another going concern rather than developing yours.

One question along that same line. I notice you dwell on the war work that Benrus did and very commendably so, but I was told, and I want to check this, that that was done largely with the manufacturing plant that you purchased.

Mr. LAZRUS. As a matter of fact, that is not so, because the truth of the matter is that we had to reorganize that plant completely.

Representative CURTIS. The only thing I am interested in is—

Mr. LAZRUS. It is not so. We had to go out and acquire machinery—

Representative CURTIS. Let me tell you what I am interested in. It is solely the question of the skills that were needed. The only point of the question is that if you did acquire a plant that had these skills that were developed through manufacturing watches and it was through those skills that you did your war work, then my question becomes pertinent, but if that is not so, the question is not pertinent.

Mr. LAZRUS. Completely not so. As a matter of fact, the plant that we acquired at that time had been defunct and not operating for a long time.

Representative CURTIS. Were the skills available in the community?

Mr. LAZRUS. The skills that were available in the community were so insignificant as to be almost nothing.

I imagine we didn't find more than 2 or 3 people there.

Representative CURTIS. In other words, you could have done that war work without those skills.

Mr. LAZRUS. We could do it tomorrow, and we haven't any of that type of skill.

Representative CURTIS. That is the purpose—

Mr. LAZRUS. We have been bidding on that type of work.

Mr. CARTOON. I think there is a little confusion. We said there is a technological lag between the domestic watch manufacturing industry and the industry in Switzerland. That is No. 1.

That is one clear point. The other clear point we made was that the defense essentiality part of the domestic industry is confined to relatively small limits of certain doctor of philosophy type engineers, as Mr. Anderson well put it, and not to the general semiskilled or even the skilled assembly worker who can easily be trained to do the assembly tasks.

The real germ of the skills represents just a few people in these plants who do the engineering, toolmaking, and so forth.

Representative CURTIS. Let me ask you this question. Mr. Lazrus has said one reason he couldn't go into the domestic manufacturing is because they didn't have the skills that these other companies had.

You mean it is the only skills that you would need, for example, if your company decided to go into domestic manufacture, just a few men?

Mr. CARTOON. Yes. I think technically for the toolmaking and the tool designing that is true. Now, I didn't say that the people who assemble aren't skilled or semiskilled. Technically they are. But from a defense standpoint the tool designing and toolmaking skills are the most important, and they are interchangeable types of skills that exist in other industries.

Representative CURTIS. If that is so, you could go into domestic manufacture. That would not be a deterrent.

That is all I am getting at.

Mr. CARTOON. I think if we were forced to, I think we could, but we have no plant. We did have a group of 90 or 100 skilled watchmakers when the war came along, with our small group of skilled technicians, and some engineers we hired, we produced right in our own premises bank-and-turn indicators and compensated compasses, and many other things that had nothing to do with, let's say, a watch, but had a great deal to do with the war effort.

Representative BOLLING. I think Mr. Anderson would like to add something.

Mr. ANDERSON. I have a comment that I think is germane to your question. It is a quotation from a memo from Mr. Weitzen, president of the Gruen Watch Co., which I did not include in my oral presentation but I will put in the record, and it will take just a moment to read. As you know, the Gruen Watch Co. does no manufacturing in the United States but has a plant in Switzerland in very much the same sense that these two gentlemen are operating.

Just as a clinically minded doctor, anxious to keep apace of his profession, will establish his practice in a medical or teaching center, so will a watch manufacturer, eager to main the technological superiority of his product, locate his plant in the most advanced horological center.

This fundamentally was the reasoning that induced Gruen to locate its manufacturing operations in Switzerland. There is a notorious lack in the United States of the really creative horologists that have made watchmaking a profession in Switzerland.

As a consequence, the Swiss have maintained technological leadership in the watch industry while American manufacturers have not.

The wholly owned Gruen manufacturing plant in Bienne, Switzerland, benefits directly from the intensive horological research and development activity of the Swiss. Gruen introduced the first practical thin watch to the American market. Gruen introduced the first oblong ladies' movement. Gruen invented the curvex movement, and Gruen produced the first ladies-sized self-winding watch movement.

All of these first were the product of creative engineering, advanced design, and skilled horology.

More recently Gruen has endeavored to equate its production techniques with these advances in horology and design. This we have done by introducing automation into the manufacture of watch movements. With automated machinery we obtain closer tolerances, greater uniformity, speedier production, reduced waste, and we enormously simplify personnel skill requirements.

Critical skills are confined primarily to those employees who design and build tools, dies, and machines as well as those who set up and maintain the automated machines. In all but a few peculiar instances, however, these skills are similar to those utilized in other forms of precision production.

Representative CURTIS. As far as I am concerned, the meat of the whole question is whether or not horological skills, for example, such as exist in Switzerland and, according to your presentation, do not exist to the same fine degree in this country, whether those skills are skills that would be available to our defense efforts.

Mr. ANDERSON. We have them in other fields.

Representative CURTIS. Just a minute. Suppose we could transport the Swiss skills and Swiss training to this country so that it would exist here. Would that be an advantage to us from the defense standpoint?

Now, apparently we do not have that degree of skill, but I again would say this, that from a defense angle, isn't it important—or is it, that is the question—that we try to begin to develop horological skills in this country?

Mr. LAZUS has pointed out we should start out by having some courses. If that is so, then as weak and poor and inefficient as the domestic watch industry is, it is at least the starting point. Plus, I would say, the work that the importers are doing. But to me that is the burden of the case here. I am not drawing conclusions but that is the point I am trying to develop information on.

Mr. ANDERSON. I would like to make a comment about that, if I may.

The whole burden of our presentation is that the important skills are the skills which are readily transferable, important skills now from the standpoint of national security.

Representative CURTIS. But if that were so, why would Gruen go to Switzerland? Because it is easier to get them there. They've got them there. Now, that is the—

Mr. ANDERSON. It is a particular pool of horological skills in Switzerland which was attractive to them and, indeed, to others as well. I think we should clearly distinguish between the skill that may be needed to go into the watch manufacturing business—where it would obviously be helpful to have as many men as possible trained in horological sciences and experienced in the business—and the skills needed to produce precision defense items.

The point I am trying to make is from the standpoint of defense essentiality and the national security of the United States, our problem is: Is the overall pool of skills which are capable of designing automated equipment and other things of the modern world for the production of important items for our armed services, is that total pool too low? We think it probably is.

Now, therefore, if the American watch manufacturers should on their own decision decide to establish a higher degree of training, of that type of skill within their plants, as far as I am concerned, that would be all plus for the national defense.

Representative CURTIS. We could even take some of the exhibits that were here. The Lindbergh watches which were designed basically for military work. They are designed not by the people of our own country but from abroad. Those are direct skills that we didn't have in this country. Obviously they went abroad to get them.

I am not trying to argue pro or con on this. I am trying to get the facts that bear on the problem that we are trying to reach as to whether or not from the defense standpoint the development of horological skills and the keeping of them in this country are important.

Now, there are two aspects of it. One is to directly apply those skills to making watches, which is important in defense itself. Secondly, to use those skills to make things that are similar, other war materials that are similar.

Mr. ANDERSON. This last point is the main burden of our song, that the production workers' skills in modern production, whether it be watches or electronic equipment or ballbearings or anything, the production workers' skills are rapidly becoming obsolete in the face of automated production lines. I am only sorry that John Coleman, president of the Burroughs Corp. could not be here to testify what is happening to him. He is working to a millionth of an inch on all sorts of electronic equipment and things for the intercontinental ballistics missile and he is doing it with production workers that are girls subject to 5 hours of training. Why? Because his engineers have designed an automated line that does the job. You have to even have an electronic piece of testing equipment to find out if you have done the job properly. This is the kind of thing, the kind of skill that the safety of the country depends upon.

Representative CURTIS. I tend to agree with you, but it is into this area that I want to get.

Thank you, Mr. Chairman.

Representative BOLLING. Do you have some more questions?

Representative TALLE. I would like to ask you gentlemen how the watch manufacturers proceed with recruiting learners, new men in the field, new workers?

Mr. LAZRUS. In our own plant we have a program in which we either advertise for people or take someone already there, a shipping clerk or somebody that works in another department, and put him in and teach him a trade.

Representative TALLE. Are the entrance qualifications severe?

Mr. LAZRUS. Not at all. Very ordinary.

Representative TALLE. How do you determine their aptitudes?

Mr. LAZRUS. Well, our shop foreman will see if they have a little dexterity in their hands, and so on. Nothing big, rather modest.

Representative TALLE. Is the turnover large or small?

Mr. LAZRUS. Not particularly large. We have a very small turnover.

Representative TALLE. Mr. Cartoun, do you have a comment?

Mr. CARTOUN. Well, I think you want to address that to the domestic watch manufacturers who are the people who can answer it, as to their particular programs.

Representative TALLE. I was thinking also of the watch manufacturers abroad.

Mr. CARTOUN. Well, they, of course, do have watchmaking schools which teach certain of the trades and procedures. They have a greater industry and a greater technological educational system.

Representative TALLE. Mr. Anderson, have you a comment on that?

Mr. ANDERSON. No, sir. I am not informed as to how this personnel recruiting problem goes.

Representative BOLLING. Dr. Ensley, the executive director of the full committee, do you have some questions?

Dr. ENSLEY. I have 1 or 2.

Mr. Cartoun, it has been charged that the Swiss watch cartel has been working to undermine the domestic manufacturer of watches in.

this country and that protection is needed in order to insure their continued existence for defense purposes.

Would you comment upon this matter of the Swiss watch cartel?

Mr. CARTOUN. Of course, when you use the word "cartel," you are using a pretty nasty word.

Dr. ENSLEY. What is the proper term for it, association?

Mr. CARTOUN. I would say it is a trade association of all of the elements of the watch manufacturing industry. There are some 600 of them, some very small, some fairly large, and because Switzerland has to prevent economic chaos, as we attempt to do in our own governmental supervision, they do try to arrange matters so that there won't be cutthroat competition among the domestic Swiss manufacturers, so that they can exist. However, they have no connection at all with the selling and merchandising of watches in the United States, none whatever, and I will say that we have very keen competition amongst ourselves, among the importer-assembler groups, and with the domestic manufacturers. The Swiss exert and can exert no influence here. Our company abides by the laws of the United States in doing our business in this country. Of course, when we buy in Switzerland, we must buy under the Swiss laws, and abide by the Swiss methods of doing business.

Dr. ENSLEY. Is there any evidence of this trade association fostering dumping operations in either this country or in other parts of the world? Dumping tends to be the signal to a bad type of cartel.

Mr. CARTOUN. Well, quite the contrary. I think if anything the Swiss Watch Association and the Swiss watch manufacturers are very interested to keep the American market in good shape because it is their largest market for the sale of their movements and they would be very adverse to any dumping or anything that would upset the market and make it difficult for them to get business.

Dr. ENSLEY. What would tend to happen pricewise to watches in this country if the domestic producers by one reason or another cease to continue to produce?

Mr. CARTOUN. I think the keen competition which presently exists would continue to exist in absolutely equal form.

Mr. ANDERSON. May I add one thing to that?

We were asked that question some time ago and I made quite an investigation as to what the situation was in some countries that didn't have a watch industry, notably, Argentina and Mexico and a few other Latin American countries, and based upon published advertisements of prices at realistic exchange rates, it could be said generally speaking that the price of Swiss watches in those markets was, if anything, a little bit lower than it was here.

The question was addressed to us during the course of a hearing one time to the effect that if there were no domestic manufacturers in this country, the price of Swiss watches would go up. Well, it just isn't so.

Dr. ENSLEY. The competition with the Swiss association is pretty largely the United States domestic producers, is that right?

Mr. LAZARUS. The truth of the matter is that under the trade agreement that we have with Switzerland, anybody that can acquire and assemble watches can become a watch importer. The number of importers of watches into America varies. I would think they are presently around 195, as best we can discover. There have been as many

as 600 during the war when there was a great demand for watches. Anybody who wants to get to be a watch importer can do so—you could go to Switzerland and buy your watches and sell them in the United States.

The Swiss do not ship watches into America except to somebody who buys them. If I see fit to buy too many for my requirements, it might be called dumping, but it isn't. It is just my poor purchases. I have to pay for everything I buy. If I don't, they don't ship to me again. They are very firm on their credits. They don't fool around. You either pay them or stop buying from them until you do pay them. There is a completely free market in which anybody can enter.

As a matter of fact they sell many retailers, though we find that very difficult because they sell at the same price they sell us. They don't vary their prices with anybody, and you can make the best deal you want over there, and believe me, the price of watches varies over there and they have a lot of regulations, but I never have understood them because there are so many variances of prices for what we would consider practically the same watch.

Now, when the watches come over here, therefore, it is only on a purchase made by some American. An American makes the purchase and becomes a watch importer and buys his cases here and assembles these watches here in America. We live in a very competitive society in the watch business, not only against domestic manufacturers, but against ourselves and against the competition of all items that are sold.

We have been a member of this FH for years. We are one of the defenders of the antitrust action, and I am glad to have a chance to answer a question concerning the effect of the Swiss industry on United States competition. The importer-assemblers of Swiss watches have been subjected to some very unfair accusations and innuendoes. First of all, I want to say that my company, the Benrus Watch Co., is an American-owned and American-operated company. We are firm believers in the American competitive system—which has made our company's success possible—and will always champion it. I wish to state with all the conviction at my command that we always have and always will comply with both the letter and spirit of our laws, including the antitrust laws.

While we are an American company, we manufacture our watch movements in Switzerland. Clearly, in our operations in Switzerland, we must comply with Swiss laws just as any Swiss businessman operating in this country must comply with United States statutes. The Swiss have different economic problems from ours and a different economic approach to them. As I emphasized in my prepared statement, the Swiss watch industry is the foundation of that country's economy, and the Swiss Government is most basically interested in the industry. Consequently, there is considerable governmental control of the watch industry in Switzerland.

I believe it is ridiculous to say, however, that the operation of the Swiss watch industry has served to restrict competition in the United States. On the contrary, the importation of Swiss watch movements has brought the American consumer all of the benefits of aggressive competition, including lower prices, increased markets and improved styles. History clearly shows that it has been the skill and innovation

of the Swiss watch industry that has brought to the American public the latest styles of improved timepieces at popular prices.

Insofar as the cartel charge is concerned, I would like the record to show that the Benrus Watch Co. is not a party to any agreement with anyone in Switzerland or anywhere else which governs the prices we charge for our products, our distribution or production or any other matter which could be said to restrain trade.

I know that it has been alleged that the Swiss regulation of their watch industry is in conflict with our antitrust laws. This is, in fact, the question raised in the pending antitrust case dealing with the Swiss watch industry. I firmly believe that no such conflict exists, and that the Swiss laws and our own laws can both be effective and operate to the benefit of all. In any event, whatever question can be raised as to possible conflict between Swiss Government regulations and our laws will probably be resolved in the near future—either in the pending case or by direct negotiations between the officials of the two Governments.

Now, I have been a member of that FH ever since its existence, as have other companies, and the Bulova Watch Co. and the Longines Watch Co. have been members, and Gruen. I can honestly say in the many years I have been a member I have never found any activity like that.

Mr. CARTOON. May I add just one thing. I think what we are trying to say here is that the watch industry is an industry, a business in the United States. Part of it is dependent on movements manufactured in the United States and merchandised in the United States. Part of it is dependent upon movements manufactured in Switzerland and merchandised in the United States. What we are trying to say, also, is that this business has very few, if any, essential skills necessary for national defense.

What I would like to say is that there is a large watch business in the United States, and I think it would help considerably if the domestic manufacturers could enlarge their vision. When the total market was 4 or 5 million jeweled watches in this country they thought it was the maximum.

Now, it is 10 or 12 million a year, and I wouldn't be surprised that in 10 years the total jeweled watch market would have a potential of 20 million. The reason I say that is because by bringing out new models and new styles and outmoding the present watches, which has been done in automobiles and many other industries, and, of course, in women's clothing, as we well know—

Senator DOUGLAS. You wouldn't be going in for planned obsolescence?

Mr. CARTOON. I think progress creates planned obsolescence. That is what happens. You get finer watches, thinner watches—like your automobiles. The first automobile I got with power steering, I thought was crazy; but about 2 weeks later I wouldn't have traded it for anything.

I think the Swiss, by pacing this technological leadership, are creating an increase in the potential watch business in the United States. I wouldn't be surprised if, in 10 years from today, we have a 20 million watch market in America.

Representative TALLE. Mr. Chairman, I have a paper here submitted by the chairman of the Department of Economics of Georgetown University in which he makes some comments.

Representative BOLLING. That was inserted in the record yesterday.

Representative TALLE. Thank you very much.

Representative CURTIS. Mr. Cartoun, is there any agreement with your company and the Swiss associates that you will not enter into domestic manufacturing?

Mr. CARTOUN. Absolutely none that I know of. I am chairman of the board.

Mr. LAZRUS. As a matter of fact, we tried to acquire the Hamilton Watch Co.

Representative CURTIS. I know you did, and that I presume—

Mr. LAZRUS. We couldn't—

Representative CURTIS. There never has been such an agreement?

Mr. LAZRUS. None that I know of.

Representative CURTIS. Never any pressure to keep you from going into the domestic market?

Mr. LAZRUS. We might decide to do it again, very frankly.

Representative BOLLING. Dr. Sheldon.

Dr. SHELDON. I have a question or two for Mr. Anderson.

During the presentation this morning the point has been made by our several speakers that there are essential skills important to defense scattered in many different industries in our country.

One point which I would like to come back to a little bit relates to the essentiality of watches themselves in wartime. The Defense Department in the past has given certain estimates as to the number of jeweled movement watches which are required for military purposes. There is another quite different figure from the Department of Commerce which is not for military purposes, of course, but for essential civilian needs in wartime. I wonder whether you can develop for us just a little bit the position of your association on this Department of Commerce estimate. We have heard the figure at one point of 3 million movements. Could you develop that a little bit for us?

Mr. ANDERSON. I would be glad to. The figure was 3 million that the Department of Commerce—I happened to be there at the time—advocated before the Interdepartmental Committee on the Watch Industry. As you know, that Committee eventually ended up with a 2 million figure which is supposed to be the compromise figure of the Department.

The Department of Commerce dipped back into World War II experience and adduced a considerable amount of record to the effect that nurses were suffering serious hardship because they couldn't get a jeweled watch with a sweep-second hand, that miners were having a lot of trouble because they couldn't get jewelled watches, and quite a large variety of other things.

Now, this, I suppose, partly stems from what kind of a war we are going to be in. You remember the interesting discussion yesterday of the three possible wars. I would think that this is a good point to refer back to, because if we get a peripheral war like a police action in the Middle East, Switzerland is going to be open to us.

If we get a repetition of World War II without thermonuclear weapons, nobody knows whether Switzerland will be open, but I

would suspect that the situation would be such that the nurses and the other essential civilian needs could probably be satisfied out of the estimated 10 million watches now on the hands of the jewelers in this country.

You know in the last war we froze automobiles on January first, 1942, and nobody could get an automobile unless he had a permit, and I don't think it would be any trick at all to freeze the 10 million inventory of jeweled watches that exists today on the shelves of the jewelers if that turned out to be something that the highest authority decided was vital.

Furthermore, nobody knows the exact figure, but it has been variously estimated that there are in the United States some hundred million functioning jeweled watches belonging to individual consumers.

Now you remember the binoculars collected in the last war. If you have that kind of a war, I think an appeal to bring in watches with sweep hands, if it turns out the nurses are having a terrible time, would be an effective way of continuing this. I can't imagine frankly a repetition of World War II type of war in which the American watch industry would be permitted to manufacture 3 million or even 2 million civilian watches. I think they would be too important, as everybody would be important, for other things.

Incidentally, as a footnote it might be said that the Defense Department report to which I referred earlier cuts down very much its own requirements for issuance of watches and it now also says it has discovered a variety of pin-lever watches would be perfectly satisfactory for the troops, so their own requirements would be very much less.

Dr. SHELDON. Thank you very much.

I have one question for Mr. Lazrus. I have been reading several newspaper articles and other material pointing out that precision instruments and other vital defense items are dependent upon an available supply of jeweled bearings. It is my understanding that Bulova, Elgin, and possibly other watch companies have been producing jeweled bearings and are particularly well qualified to handle the manufacture of these items which are so vital to defense.

Would you like to comment?

Mr. LAZRUS. I think jeweled bearings are an important item, but there again they are not the leading manufacturers in the jeweled bearing field. I have a list here of manufacturers offered by the Department of the Interior, people that manufacture jewels: Pphaostron Co., Pasadena, Calif.; Richard H. Bird, Waltham, Mass.; General Electric Instrument Department, West Lynn, Mass.; Aurele M. Gatti of Trenton, N. J.; Moser Jewel Co., Perth Amboy, N. J.; Western Electric Instrument Company of Newark, N. J.; Taylor Instrument Company of Rochester, N. Y.; Turtle Mountain Ordnance Plant, Rolla, N. Dak.

Personally, I think that the manufacture of jewels is again not an unusual technical skill. I think a great deal of labor is used there that is not skilled, and it is a matter of machinery and tooling, and I think that they could easily develop a greater supply of jewel bearings to meet defense requirements.

Representative TALLE. Mr. Chairman, Mr. Lazrus has mentioned Rolla, N. Dak. That is where those American Indians live that were referred to by Senator Ralph Flanders yesterday.

Mr. LAZRUS. They are not unusual—all of these firms. We ourselves bought jewels from the Moser Jewel Co., in Perth Amboy, N. J., and they make them very well. They are not unusual manufacturers. There is nothing particularly difficult about it.

Dr. SHELDON. It might be of interest—the subcommittee last Friday made an inspection trip to a number of industrial facilities and had occasion to visit the Eclipse-Pioneer division of Bendix Aviation.

We were told that actually for many of their defense items they are no longer using jeweled bearings. Jeweled bearings are no longer adequate for the purposes that are required. They are having to move on now to ball or roller bearings of various kinds.

Representative BOLLING. Any further questions?

I have two small matters, one to repeat and another somewhat difficult one to make a statement on.

The hearing tomorrow will be in the caucus room, Senate Office Building, and it will be at 9:30 as was this one day.

The difficult subject is that when we set up these hearings, we allocated not so much time to witnesses as blocs of time to certain approaches or points of view, and today Mr. Anderson, for example, was permitted to go on for 25 minutes.

If the 6 witnesses tomorrow, just twice as many as the 3 that we had today, each take 25 minutes, there is going to be absolutely no time for questioning, and it is fairly clear, I should think, that some of the most interesting points come out in questioning. In the interest of the information of the committee, the members of the panel, the witnesses tomorrow are going to have to use considerable self-discipline or we are going to run out of time before any committee members have an opportunity to ask questions. I would like everybody to keep that in mind.

There being no further business, the committee will adjourn until 9:30 tomorrow morning.

(Whereupon, at 12 noon, the committee adjourned, to reconvene at 9:30 a. m., Wednesday, June 6, 1956.)

DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

WEDNESDAY, JUNE 6, 1956

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY,
JOINT ECONOMIC COMMITTEE,
Washington, D. C.

The subcommittee met, pursuant to recess, at 9:35 a. m., in the caucus room, Senate Office Building, Washington, D. C., Hon. Richard Bolling (chairman of the subcommittee) presiding.

Present: Representative Bolling, Senators Douglas and Flanders, and Representative Talle.

Also present: Grover W. Ensley, executive director; John W. Lehman, clerk; and Charles S. Sheldon II, staff economist.

Representative BOLLING. The subcommittee will be in order.

Yesterday we heard from representative importers of watches, with expressions of their views on the problems of the watch industry related to defense essentiality and foreign economic policy.

Today, we are continuing discussions of the same topic, but the witnesses appearing will represent the domestic producers of jeweled-lever watches, the pin-lever watch, and clock industry, and an important segment of labor in the jeweled-lever industry.

On earlier occasions I have expressed our objectives in these hearings and explained that our selection of witnesses because of time limitations had to be representative rather than complete. Thus today the clock people have a single witness. This is not to minimize their importance, for we are not pretending to examine their problems in detail. We have asked this witness for the light which he may be able to throw upon our more detailed study of the jeweled-lever industry. Likewise, the labor representative present is well-known as an articulate spokesman for workers in watch factories, and we believe that his presentation will reflect fairly well the same points which a larger delegation would be likely to present.

I remind every participant today that the subcommittee is most anxious to have a chance to ask questions, and this will be possible only if the seven witnesses exercise great self-restraint.

Before proceeding to our first witness, I would like to submit for inclusion in the record various letters between Mr. Fowler, of Fowler, Leva, Hawes & Symington, and me. They will be included in the record at this point.

(The letters referred to follow:)

MAY 10, 1956.

MR. HENRY H. FOWLER,
*Fowler, Leva, Hawes & Symington,
Washington, D. C.*

DEAR MR. FOWLER: This letter is to confirm the suggestion I made to you and Mr. Leva this morning.

It is certainly the intention of the Subcommittee on Foreign Economic Policy to hear from such a representative group of witnesses as to assure objectivity.

I understand that on May 8, Grover Ensley requested Paul Mickey to think about the kind of people who might be included profitably in the schedules for Monday, June 4, and Thursday, June 7. I want to emphasize that the Monday program is to be devoted to the broader issues of defense essentiality as a part of national policy rather than being concerned primarily with watches. Wednesday is being allocated exclusively to the domestic producers of watches and clocks. Thursday is being reserved for discussion in general terms again of problems of skills, precision work, and mobilization. If you have some names to offer us of people of the stature and competence of John Coleman and William Batt, I am sure we can find time to hear them on that same day.

An early reply, in any event no later than May 17, 1956, will aid all of us in making arrangements for the hearings. You can feel free to consult with our staff to arrange the specifics of the scheduling for the first week in June.

Very sincerely,

RICHARD BOLLING, MEMBER OF CONGRESS,
Chairman, Subcommittee on Foreign Economic Policy.

MAY 15, 1956.

Mr. HENRY H. FOWLER,
*Fowler, Leva, Hawes & Symington,
Washington, D. C.*

DEAR MR. FOWLER: Mr. Bolling, who is out of the city, has asked me to reply to your letter of May 10 concerning the June 4-8 hearings of the Subcommittee on Foreign Economic Policy of the Joint Committee on the Economic Report on the question of defense essentiality. Mr. Bolling has read your letter and discussed this reply with me.

The dates of the hearings were determined by the subcommittee in the light of the schedules and other commitments of the various members of the subcommittee. Under all the circumstances, deferring the hearings is not practicable.

The scope of the hearings is as stated in Mr. Bolling's letter to you of May 10, and was decided upon by the subcommittee as the approach best designed to obtain the information needed for the subcommittee to meet its responsibilities.

As to the fourth point of your letter, the subcommittee will certainly retain control of the choice of witnesses, but as Mr. Bolling stated in his letter of the 10th, he will welcome suggestions from any participants to insure that a variety of views can be considered. The choices he has announced so far include several witnesses not even known to the importers. We hope the program for the hearings will be complete by May 17.

Mr. Bolling also has told us that he believes a visit to the Bulova plant on Long Island would be a useful step. He has suggested that Saturday, May 26, would be his most convenient day. But if operations are shut down then, either Friday the 25th or Monday the 28th would also do. In all probability, if it were possible, any invitation should include all five members of the subcommittee, Representative Thomas B. Curtis of Missouri who is joining in the activities of the subcommittee although not a regular member, as well as Staff representation. What we would have in mind is flying up to La Guardia, proceeding to the plant, and then returning to Washington the same day.

We look forward to your cooperation in making the hearings as informative and as factual in content as the time available will permit.

Very truly yours,

GROVER W. ENSLEY, *Executive Director.*

WASHINGTON, D. C., May 17, 1956.

HON. RICHARD BOLLING,
Chairman, Subcommittee on the Foreign Economic Policy, Joint Committee on the Economic Report, House Office Building, Washington, D. C.

DEAR CHAIRMAN BOLLING: This is in response to your letter of May 10th and Mr. Ensley's letter of May 15.

I note your rejection of my various requests (1) for a postponement of the hearings in order to give adequate time to prepare, (2) that the scope of the hearings be broadened to include industries other than the watch industry,

so as to avoid embarrassment to the administrative proceedings relating to the watch industry now pending before the Office of Defense Mobilization, and (3) that your subcommittee hear expert witnesses of the most objective sort who have not been suggested by the importers, or for that matter, by the domestic watch industry.

I appreciate your and Mr. Ensley's statements that you will "welcome suggestions from any participants to insure that a variety of views can be considered." Although the deadline fixed, namely today, May 17th, for the making of such suggestions has not permitted an adequate canvass of the field to determine whose expert testimony could be made available to the subcommittee on such short notice for its hearings during the week of June 4, I will offer such suggestions I now have.

(1) For the first day of the hearings, I suggest that the committee hear, along with the other general political and economic experts, from the Honorable Stanley N. Barnes, Assistant Attorney General in charge of the Antitrust Division of the Department of Justice, and Mr. Sigmund Timberg, Washington attorney and former secretary of the United Nations ad hoc committee on restrictive business practices and, prior to that, for 6 years Chief of the Judgments and Enforcement Section of the Antitrust Division of the Department of Justice.

I attach hereto a memorandum explaining why your Subcommittee on Foreign Economic Policy, in continuing its study of United States and foreign commercial trade policy with particular reference to the watch industry and its defense essentiality ought to become intimately acquainted with the general economic considerations and background which these two witnesses are abundantly qualified to supply.

This memorandum points out that private restrictions of a cartel nature, backed by governmental authority, have a direct bearing on the problems of defense essentiality and foreign economic policy with which your subcommittee is dealing. For your subcommittee to explore only the bearing of tariff restrictions on these problems, and to ignore the impact of private cartel restrictions, is to present a one-sided and distorted picture. This is particularly true of the watch industry.

It is incumbent upon this committee to determine the effect, on national security and on free trade and commerce, of the removal of the last three United States producers from competition with the organized and cartelized Swiss industry, backed by the power and authority of the Swiss Government. This cartel has a practical monopoly of the free-world watch markets, except for those countries such as France and England which have by direct government action intervened to establish or preserve their industries.

I submit that the testimony of Assistant Attorney General Barnes and Mr. Timberg on the first day of the hearings will put the entire subject in the rounded perspective it should have.

There are other experts familiar with this general field who could equally enlighten the subcommittee, such as Prof. Corwin Edwards of the University of Chicago, former chief economist of the Federal Trade Commission; Prof. George Stocking, of Vanderbilt University, coauthor of a 3-volume study on international cartels for the Twentieth Century Fund, and Prof. Theodore J. Kreps, of Stanford University, who has in the past been associated with the Joint Committee on the Economic Report.

We have checked on the availability of two of these men and found that they would not, because of other commitments, be able to prepare a statement and appear in the short time intervening between now and the hearings. We have not contacted Professor Kreps because of the distance involved.

(2) On any day of the hearings, we would suggest that the subcommittee hear the testimony of Gen. Omar Bradley, formerly Chief of the Joint Chiefs of Staff and now Chairman of the Board of the Bulova Research and Development Laboratories. In view of General Bradley's unique experience and competence in the field of national security and his intimate first-hand experience and knowledge of the defense essentiality of the domestic watch industry, it is submitted that a place should be provided for him on the committee's agenda. When this was informally suggested to your staff economist, Dr. Charles Sheldon, he suggested substituting him for one of the announced witnesses on the third day. As counsel for Bulova, I am not prepared to ask another domestic watch company to give up its time for hearing. Therefore, I request that a place be made for General Bradley in the subcommittee's schedule.

(3) I suggest that on the fourth day of hearings the subcommittee invite Dr. Charles Stark Draper, director of the instrumentation laboratory, Depart-

ment of Aeronautical Engineering, Massachusetts Institute of Technology, to submit a statement on the subject prescribed for that day of hearings. Dr. Draper, as his title indicates, is an eminent aeronautical engineer with particular contemporary experience in the field of micro-precision work. He is perhaps the outstanding United States expert in the field of gyroscopes and is now, we understand, in charge of a joint research and development project on the miniaturization of gyros for the armed services.

(4) I also urge that the subcommittee arrange for an opportunity to hear Mr. K. T. Keller, chairman of the board, Chrysler Corp., and until recently director of the guided missiles program for the Department of Defense. Mr. Keller is personally familiar with the technical facilities and abilities of jeweled-watch making plants in relation to the needs of the guided missile program. By reason of his experience both in the manufacturing field and, with the Government, in directing a vital defense project, Mr. Keller is one of the outstanding experts in the country qualified to discuss questions of micro-precision techniques and defense essentiality. We have ascertained that unfortunately Mr. Keller is engaged on a top-secret Navy assignment for the entire week for which your hearings are scheduled and, therefore, would be unavailable on this short notice. Therefore, I request that arrangements be made sometime after the hearings now scheduled to hear from Mr. Keller.

Sincerely yours,

FOWLER, LEVA, HAWES & SYMINGTON,
By HENRY H. FOWLER,
Counsel for Bulova Watch Co., Inc.

MEMORANDUM IN RE INTERRELATIONSHIP OF INTERNATIONAL CARTELS WITH
DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

When the Subcommittee on Foreign Economic Policy held its initial hearing on November 9, 1955, its chairman, Congressman Bolling, made an opening statement in which he outlined the mandate and program of the subcommittee. In that statement, he indicated that the subcommittee had been created in order to carry on, in the field of foreign economic policy, the consideration of "problems arising in this field as they impinge upon the stability and growth of domestic commerce." He also referred to the subcommittee's responsibility "both for studying broad policy and for keeping the Congress informed on economic developments of which it should know in order to act intelligently and consistently in the national interest." Chairman Bolling said further: "This investigation is intended as an orderly examination of principles and their interrelations, from which a consistent policy may be developed." He stressed the "need to coordinate our economic policies over a broad field of concern that cuts across the lines of authority of the several standing committees involved in the preparation of specific legislation."

The Joint Committee on the Economic Report, in an earlier report dated March 14, 1955, had stated: "The committee's recent hearings revealed the need for an investigation of the significance of the whole complex of our international economic relations for the stable growth of the Nation's domestic economy. The Subcommittee on Foreign Economic Policy will undertake an appraisal of the basic theories of foreign trade as they pertain to the position of the United States in the world economy. It will attempt to determine the nature and source of the comparative advantages enjoyed by the major participants in international markets and the impact of their trade policies not only on the overall trading position of the United States but also on the condition of our major industries."

In its report of January 5, 1956, the Subcommittee on Foreign Economic Policy, in dealing with the question of defense essentiality, very properly stressed the necessity of building up the economic strength of this country and its free world allies, and pointed out that: "*This economic strength requires access to foreign markets and close ties with other free world countries so that they can share in common progress without the threat of being picked off one by one by the Soviet Empire. Nor should we minimize the importance of the spur of competition both from home and foreign industries and the retention of mobility and adaptability in our economic system as aid to our defense*" (p. 28). [Italic supplied.]

No investigation can be said to cover either "the whole complex of our international economic relations" or "the requirements of our foreign economic policy" that does not take account of the way in which foreign cartels diminish the levels and distort the flow of foreign trade and injure domestic trade and commerce.

The present administration, and past administrations for the last 20 years, have consistently indicated that foreign cartels are unjustified interferences with international trade, are injurious to American producers and standards of living, and are imminent dangers to the national defense. Recent congressional expressions of this continuing policy are to be found in the 1943 Johnson amendment to the Reciprocal Trade Agreements Act (19 U. S. C. A., sec. 1351 (a) (2)), and in the Benton, Moody, and Thye amendments, in 1951, 1952, and 1953, respectively, to the mutual security legislation (22 U. S. C. A., sec. 1933 (a)).

During World War II, the Truman, Kilgore, and Bone committees of the Senate made significant and startling disclosures as to the way in which foreign monopolies and cartels, frequently acting under the direction and control of their respective governments, endangered this country's security and impaired the off-shore procurement and domestic production of vitally needed strategic and critical commodities such as natural and synthetic rubber, industrial diamonds, and tungsten carbide. One of the most effective methods employed by the Nazi government to weaken our defense preparations was to sanction private cartel agreements which prevented United States manufacturers from entering Latin American and other foreign markets and which curtailed the amounts of commodities that could be produced within the United States.

These Senate hearings also showed that the United States economy was considerably weakened because of cartel policies and practices pursued by foreign cartels which kept newly discovered technology, expertise, tools, and machinery from being made available within the United States. More than 10 years have elapsed since these specific disclosures were made by the Congress, but the general lessons derived from our World War II experience are as pertinent as ever to the foreign economic policy issues under consideration by the subcommittee.

These considerations become even more compelling in the case of the watch-making industry, with its special problems of defense essentiality and the continuous record of domination of the industry by the Swiss watch trust. According to a civil antitrust complaint brought by the United States Government in October 1954, "over 95 percent of watches, component parts, and repair parts, including jewel bearings, imported into the United States are purchased from concerns located in Switzerland. * * * In 1953 total sales of watches in the United States amounted to about 12 million units valued at wholesale in excess of \$225 million, of which approximately 20 percent were manufactured in the United States and approximately 75 percent were imported from Switzerland. * * * In 1953, total exports of watches from the United States amounted to approximately 200,000 units."

Since 1953, the share of the United States watch market supplied by United States producers, and even the minuscule amount of watch exports from the United States, have declined still further.

The Government's complaint attributes this condition to an alleged conspiracy by the organizations which dominate the Swiss watch industry, which not only regulate in considerable detail that industry in Switzerland but also impose specific and drastic restraints on United States importation, exportation, and domestic trade in jeweled watches, component parts, and repair parts thereof.

According to the Government's complaint, this conspiracy involves specific restrictions, the alleged substance of which have been that—

(a) manufacture of watches and component parts within the United States be prevented, discontinued, or curtailed;

(b) importation of component parts from Switzerland into the United States be eliminated except under special circumstances, as hereinafter described;

(c) importation of watches and component parts into the United States from all countries other than Switzerland be eliminated;

(d) exportation of American produced component parts from the United States to Switzerland and reexportation of Swiss produced component parts from the United States to the rest of the world be eliminated;

(e) selected countries within the Western Hemisphere be allocated as foreign markets to which imported Swiss watches may be exported from the United States, and exportation of such watches from the United States to other parts of the Western Hemisphere and to the rest of the world be eliminated;

(f) minimum prices for watches and maximum prices for repair parts be established, policed, and enforced for such products imported into and sold within the United States;

(g) methods of distribution in the United States of watches, component parts, and repair parts imported from Switzerland be regulated;

(h) violations of terms of the aforesaid conspiracy be discouraged and punished by fines, blacklisting, and boycotting (par. 26).

The Government's complaint further alleges that this conspiracy has had the effect of—

(a) retarding and obstructing the growth of the United States watch manufacturing industry, the continued expansion of which is important to the national defense and economic development of the United States;

(b) diminishing the exportation of watches and component parts from the United States as a result of the agreed delimitations of the foreign markets to which United States exporters are permitted to ship;

(c) causing the defendant United States watch manufacturers to continue to engage in such manufacture solely at the sufferance of defendant F. H. and the other Swiss defendants and coconspirators, and hindering or excluding all other persons and companies from entering into or remaining in the business of manufacturing watches and component parts within the United States;

(d) permitting the defendant F. H. and the other Swiss defendants and coconspirators to perfect and maintain control over the importation of watches, component parts, and repair parts into the United States and the reexportation of such watches and component parts from the United States;

(e) interfering with and suppressing the rights of United States manufacturer-importers to purchase watches and component parts from foreign sources of their own selection;

(f) depriving United States importers of the economic advantage of purchasing watches and component parts imported from Switzerland at prices determined by free and open competition;

(g) maintaining the prices of Swiss watches in the United States at arbitrary and noncompetitive levels;

(h) securing to the coconspirator repair parts importers a monopoly within the United States of the business of distributing watch repair parts manufactured by or subject to the control of defendant Ebauches SA and its affiliates and excluding other persons and companies from the said business within the United States;

(i) restraining interstate and foreign trade and commerce in watches, component, and repair parts imported into, exported from, and sold within the United States (par. 40).

In the light of the foregoing facts and allegations, it is incumbent upon this subcommittee to determine realistically what the effect on national security and international trade will be, if the domestic production of the three remaining United States producers of jeweled watches is eliminated or is further disabled from effectively competing with the highly organized and cartelized Swiss industry, backed by the power and authority of the Swiss Government. See the Swiss Federal Decree of June 22, 1951, which makes permanent the system of official governmental control which had for the preceding 20 years confirmed and consolidated the cartel's position both within Switzerland and throughout the world.)

This subcommittee will have investigated only a limited phase of the problem of defense essentiality and foreign economic policy if it confines itself to the question of tariff and other governmental restrictions on foreign trade. Unless it also analyzes the issues created by the operation of private cartel restrictions on United States foreign and domestic commerce, the subcommittee will be receiving a partial and distorted picture of the complex and delicate subject with which it is dealing.

MAY 25, 1956.

Mr. Henry H. FOWLER,
Fowler, Leva, Hawes & Symington,
Washington, D. C.

DEAR MR. FOWLER: Thank you for sending to us the suggestions for the hearings on defense essentiality and foreign economic policy. Let me comment briefly on each of the major points which you have raised.

(1) As important as the cartel problem may be, I doubt that it would be extremely helpful to the subcommittee to spend too much time discussing this as we do not feel that it is central to the real questions which concern us at this time. All trade, whether at home or abroad, may face either problems of pri-

vate monopolies or state trading arrangements. As such they are of concern to the economic and technological health of industry, but may not of themselves affect the establishment of criteria of defense essentiality. Time is going to be too short for us to follow this particular bypath in the hearings except in the most cursory way.

(2) We would be happy to hear from General Bradley as a witness for the domestic producers of watches. If the other domestic companies agree to make time for him, we could arrange to hear him on Wednesday, June 6. Alternatively, Mr. Bulova might give up some of his time. This can be worked out when we learn what the reaction of the other domestic manufacturers is to appearing on the program.

(3) We appreciate the fine suggestion of Dr. Draper's name for the Thursday program, and have sent an invitation to him, and also to Mr. Lewis, president of Argus Cameras, Inc., who was first suggested to us by Mr. Mickey.

(4) We are sorry that Mr. K. T. Keller is otherwise occupied the week of our hearings. It would be premature for us to try to set an alternate time for hearing him.

Very sincerely,

RICHARD BOLLING,
Member of Congress,
Chairman, Subcommittee on Foreign Economic Policy.

WASHINGTON, D. C., June 1, 1955.

Hon. RICHARD BOLLING,
Chairman, Subcommittee on the Foreign Economic Policy,
Joint Committee on the Economic Report,
House Office Building, Washington, D. C.

DEAR MR. CHAIRMAN: This is in response to your letter of May 25 in connection with the hearings which your subcommittee has scheduled for June 4, 5, 6, and 7.

In that letter, among other things, you rejected our suggestion that the subcommittee go into the cartel question. I was surprised that you should consider the question of foreign cartels to be a mere "bypath" in relation to the specific inquiry presently before your subcommittee—namely, the interrelation between defense essentiality, foreign economic policy and free trade, with particular reference to the watch industry. As explained in my letter of May 17, and developed more fully in the memorandum attached thereto, it is most pertinent—and indeed a prerequisite to any considered and objective conclusion—for the subcommittee to take an integrated and whole look at the consequences to national security and free trade of leaving the three remaining United States jeweled watch manufacturers subject to destruction by a foreign cartel—which has already captured 80 percent of the United States market.

In view of your rejection of our request that the subcommittee call a qualified witness or witnesses in this specialized field, I should like to request that our correspondence on this subject be incorporated into the record at the outset of the hearing. This would include my letter to you dated May 17 and enclosure, your letter to me dated May 25, and this letter. By such incorporation into the record, members of the Congress, the press and the public will be informed concerning the areas which you have decided to exclude from the scope of your hearings.

A second comment has to do with your response to my suggestion that time be provided for the subcommittee to hear Gen. Omar Bradley, now chairman of the board of the Bulova Research and Development Laboratories. Your suggestion was that General Bradley will be heard if the other domestic producers or Mr. Bulova give up some of the brief 15 minutes allotted to each of them on the third day of the hearings. It is my hope, in accordance with earlier discussions with your staff, that as the hearings progress the subcommittee will see its way clear to hearing General Bradley's experienced views for 15 minutes, either during the third day or any other day of the hearings, without requiring Mr. Bulova or any other witness to curtail still further the very limited time that has been allotted out of the 4 days of your scheduled hearings.

Sincerely yours,

FOWLER, LEVA, HAWES & SYMINGTON,
HENRY H. FOWLER,
Counsel for Bulova Watch Co., Inc.

Representative BOLLING. Our first witness is Mr. Arde Bulova, chairman of the board of the Bulova Watch Co.

Mr. Bulova attended local and public high schools in New York; went immediately into his father's business, with the J. Bulova & Co. which, at that time, was a jewelry manufacturing organization; helped develop this company successively through the stages of manufacture of watch cases, importation of watch movements, establishment of watch manufacturing facilities in Switzerland, and the establishment of watch manufacturing facilities in the United States. He is chairman of the board of the Bulova Watch Co.

Mr. Bulova, we are glad to have you with us.

**STATEMENT OF ARDE BULOVA, CHAIRMAN OF THE BOARD,
BULOVA WATCH CO., INC.**

Mr. BULOVA. My name is Arde Bulova. I am chairman of the board of the Bulova Watch Co. I appear before your committee to repeat a heartfelt conviction that I have voiced before several congressional committees and many officials of the executive branch over the last few years—namely, that from a national security standpoint it is absolutely essential to keep a minimum watchmaking industry alive and healthy in this country.

Various agencies of the Government—in both the legislative branch and the executive branch—have studied this question thoroughly and repeatedly. And without exception, they have all officially and unanimously found the jeweled watch industry to be essential to the national defense. I am frankly puzzled as to why my judgment is further consulted by your committee. The key portions of the official findings on defense essentially have been collected for the subcommittee's convenience and are attached to my prepared statement as exhibit A.

FACTS ABOUT BULOVA

I like to think of myself as objective on the general problem of the struggle between importers and domestic manufacturers. My claim to objectivity is the unique position of the Bulova Watch Co. in the watchmaking industry. We are the only company that operates manufacturing plants in both the United States and Switzerland. In addition to our domestic production, we are also the largest importer of jeweled-watch movements from Switzerland. I might also remind the committee that I personally am, and have been for many years, a strong supporter of the reciprocal trade program.

Starting about 5 years ago, immediately after the Communist aggression in Korea, it became clear to me that the United States watch manufacturing industry was threatened, not just with some minor injury or loss of a share of the United States market, but with total elimination. My fellow importers yesterday said that this was due to the backwardness and inefficiency of the United States industry. But this was not the case. Rather it was caused by the ever-widening spread between labor costs here and in Switzerland. These labor costs constitute 85 percent to 90 percent of the total cost of a watch movement. Actually Swiss wages had been stabilized by the Swiss watch trust at a level about 70 percent above prewar, whereas United States

wage rates for comparable skilled work had skyrocketed about 300 percent.

Our watchmaking plants in both countries provided me with the most accurate and dependable yardsticks of cost. I saw that this wage differential could never be narrowed enough through increased efficiency to preserve the American watch manufacturing industry.

The outstanding efficiency of the Swiss watchmaking industry is proverbial. I am proud to have been a part of it. My experience in watchmaking began in Switzerland and has continued until today. I know how good they are.

I am also proud to say, however, that we have made Bulova's American operation even more efficient than its counterpart in Switzerland—in terms of man-hour requirements per unit of production—in terms of modern types of tools and machinery—in fact, in any terms except actual labor costs which result from the wage differential as between the two countries.

As I faced up, in 1951, to the early prospect of the total elimination of the United States jeweled watchmaking industry, I realized that as a commercial matter it made little or no difference to the Bulova Watch Co. Our domestic facilities were in great demand for Korean war work. Therefore, they could have been converted to great advantage to any number of civilian-type items other than watches.

But I had to consider an important factor other than the commercial interests of the Bulova Watch Co. I was an American with some responsibility for my country's welfare and security, as least so far as my industry related to it. I had seen at first hand the vital wartime contributions of the domestic watchmaking companies, including the Bulova Co., during World War II. I was witnessing a repetition of the World War II experience as the Korean emergency brought requirement after requirement for military precision work to the company. I was keenly aware of the immense contributions the Swiss watch industry had been forced to make to German military production in World War II. I could not help but fear the consequences of a Switzerland engulfed by the military forces of communism in event of another total war. All of the vaunted skills properly described here by my importer associates would then be available to our enemies, and none of these skills would be available in the United States.

What else could I do, 5 years ago, but what I did—warn those in authority in our Government how important it was to preserve a minimum domestic watchmaking industry?

CRITERIA FOR DETERMINING DEFENSE ESSENTIALLY; WATCHMAKING SKILLS A PRIME EXAMPLE

Your subcommittee is concerned with criteria for determining defense essentiality. Let me say at once that I agree with those who fear that the claim of defense essentiality might become a refuge—an umbrella for protectionism. In fact, I believe that a highly selective approach is necessary to avoid broad-scale misuse of this principle of defense essentiality to the detriment of our overall economic health and security. The industries or segments of industries qualifying for special treatment on defense grounds must be narrowed to a select

category that does not unduly impair the broad flow of healthy trade with our allies.

The National Security Resources Board, under President Truman, found that it is the critical and unique skills in the industry that are vital to our security. Skills such as these cannot be put away in mothballs or stockpiled. Nor can they be developed, improved, and kept keen on other work. These skills can reach and maintain their optimum, and remain assembled together in working, coherent, effective organizations only by actually producing watches.

In the words of Secretary of Defense Wilson, watchmaking skills will be needed:

* * * to design and produce very complex timing mechanisms, control devices, gyroscopes and similar items which must be miniaturized and ruggedized if they are to be used in modern military equipment.

That is not to say that the remedy is to prohibit the importation of watches, or even to curtail imports drastically. It is my own feeling that it is entirely feasible to preserve the domestic watchmaking industry at an adequate and healthy minimum level—and still permit the Swiss to have a predominant share of an expanding United States market.

Unfortunately, the Swiss and many of the importers have not up to the present time been willing to accept a reasonable approach. They seem to want 100 percent of the domestic market, and apparently they will stop at nothing to achieve this goal—even if this be at the expense of imperiling the national security of the United States. In fact, as this subcommittee has witnessed in these hearings, they are willing to achieve this objective by taking a position contrary to all of the properly constituted authorities in the executive department and previous legislative findings. They deny the importance of preserving the unique watchmaking skills as part of the mobilization base.

In fact, I have been shocked to learn at this hearing that they go so far as to contradict the policy of the Congress as expressed in the Defense Production Act and backed by President Eisenhower; they actually advocate the elimination of any defense mobilization base or industrial preparedness. I shall leave that aspect of the problem to Gen. Omar Bradley who I believe has some qualifications to deal with it.

FALLACIES OF THE SWISS IMPORTERS' POSITION CONCERNING DEFENSE ESSENTIALITY OF THE WATCH INDUSTRY

As I understood the position urged by the spokesman for the Swiss importers, it was that the specialized and unique skills available in the research, design, engineering, and toolmaking departments of the domestic watch industry could be developed and kept alive in some sort of pool of skills without having a watch industry. As to production-line skills—my fellow importers are ready to write them off as if they are replaceable by automation or skills from other industries.

Personally, I found it a little bit difficult to reconcile the statement of Mr. Anderson that these specialized watch skills were easily obtainable from other industries—with the statement of Mr. Lazrus that he had not been able to start a watch manufacturing operation in the United States because the necessary skills were only available in the

Elgin, Hamilton, and Bulova plants. I believe the confusion of these two gentlemen who appeared here yesterday attacking defense essentiality tells more eloquently than I ever could the lack of substance in their attack.

The simple truth is that you cannot develop and have available on a moment's notice, in organized groups, the variously assorted skills that go to make up the watch industry—without having a watch industry. This may seem to be an oversimplification. But I suspect it is also true of many other industries, where the degree of precision, the difficulties of production, and the highly specialized character of the equipment and skills are not comparable to the watch industry.

I know this because it took me over 15 years to accumulate these skills—largely by importing them in human beings from Switzerland and integrating these Swiss experts with Americans over a long and arduous training time. You could not replace the watch industry by any overnight draft from Mr. Anderson's general pool.

I found no such pool available outside the Elgin, Hamilton, and Waltham plants when I started a domestic watch manufacturing plant. I shared the experience of Mr. Lazrus in finding it difficult to pick up off the street, or to pirate from other types of industrial establishments, those skills with which a domestic watch manufacturing operation could be started. Unlike Mr. Lazrus, however, I did not entirely give up hope. By carefully extracting some key individuals and their families in a very painful and expensive way from the beautiful hamlets of Switzerland I was able to develop the nucleus which became the Bulova watch manufacturing complex in the United States.

I should like to add that these conditions which made possible our development of a single domestic jeweled-watch factory, based on Swiss tools, technicians and know-how, no longer exist. The Swiss have now forbidden the export from Switzerland of most of the tools, dies, and machinery for manufacturing jeweled watches. It is extremely difficult to extricate personnel from Switzerland for this purpose. With the present Swiss attitude, and based upon our own experience, I am sure it would take a considerable number of years for any company—and particularly any company without previous watchmaking experience—to organize and train the research, engineering, design, toolmaking, and production team that is represented today in the Bulova Watch Co. If it took us as long as it did under favorable circumstances to set up this operation, how can anyone believe that Eastman Kodak or Bendix or Mr. Lazrus could do it overnight or even within a couple of years?

No, gentlemen, if you lose the complex organization of teamwork and skills represented in the Elgin, Hamilton, and Bulova companies in the United States, it would take years to reactivate them to their present ability. In my judgment, it is plain nonsense and dangerous propaganda to assert, as do my fellow importers, that the United States can somehow rely on a "pool" of these skills—without having a watch industry in being.

Of course they say that other industries can do the job of the finest precision work done by the watch industry. We at Bulova have had considerable experience in working with other precision industries. In fact, a good part of our defense work is composed of doing jobs on tiny parts and components for other precision industries that they

cannot do for themselves. These companies are expert and excellent in their respective fields, but I say categorically that they just cannot match the know-how and microscopic tolerances that are everyday routine for the watchmakers. And they will never be able to do that, unless they go through the extremely difficult and time-consuming processes necessary for the establishment of a domestic jeweled-watchmaking operation. The Senate Preparedness Committee in its staff study released on June 8, 1955, came to the only conclusion the facts will permit when it said:

Although there are many manufacturers in this country who can produce fuzes and other precision material, given the time, equipment, know-how and money, their own specialization will be urgently needed by the Government in wartime. The Nation will again look to the watch and clock industry as its immediate and primary source of precision devices.

With regard to the moonshine that has been introduced into this discussion by the use of a glamorous word, "automation," I have only a few comments.

We at Bulova believe in automation and I say to you that our operation in this country already has more automation and is more efficient in terms of man-hours per watch than our own Swiss operations making the same items.

On the other hand, there are a number of manufacturing processes where further automation cannot be achieved. You just cannot dispense with, or get substitutes for, certain skills which involve the highly trained coordination of hand, eye, and brain that have been developed so painstakingly over the years.

But this talk of automation also ignores the important fact that in a watch manufacturing company such as ours, and that of Elgin and Hamilton, these skills—with or without automation—are needed in a working team with departments and personnel for research and development, design, engineering, tool and die making, and maintenance. It is the concentration and coordination of all of these skills, in the manufacture of microscopic parts which must function together, that will be lost forever if this industry is closed down.

In conclusion, I can only repeat what I have said several times before. If the United States Government decides that it is not important to have a jeweled watch industry in this country, that is all right with the Bulova Watch Co.—we will import all our watches and probably make more money than we do now. But if the Government really wants to keep a minimum watch industry going in this country—as the mobilization authorities have repeatedly decided is essential to our national security—then let the whole Government get behind that decision, and let's stop having to go over the same arguments year after year.

Thank you.

(Mr. Bulova submitted the following more detailed prepared statement, which reads as follows:)

STATEMENT OF ARDE BULOVA ON DEFENSE ESSENTIALITY OF THE AMERICAN JEWELLED WATCHMAKING INDUSTRY

INTRODUCTION

My name is Arde Bulova. I am chairman of the board of the Bulova Watch Co., Inc. I appear before you in response to a letter from your chairman invit-

ing me to testify on the significance of the American jeweled watchmaking industry to national security.

I am pleased to appear today to repeat what I have publicly stated on several occasions—namely, that from a national security standpoint it is absolutely essential to keep a minimum watchmaking industry alive and healthy in this country.

In this testimony, I shall try to touch upon some important aspects of the defense essentiality of this industry. But I hope the subcommittee realizes that in the brief time allotted here, and because so much of the pertinent information is highly classified, it is impossible to expect us to cover in one morning what has taken months in previous studies for other congressional committee staffs, and the mobilization agencies themselves, to gather, analyze, and utilize in coming to a considered judgment.

Also, in view of the subcommittee's own concern with foreign economic policy, I want to explain briefly why, in my judgment, our Government's decision to preserve a minimum watch industry for defense is in no way inconsistent with the Government's foreign-trade objectives.

FACTS ABOUT BULOVA

Let me begin with a few important facts about the Bulova Watch Co. We are an American, publicly owned company, as are the other American watch producers. But Bulova is unique in the watchmaking industry, since we are the only company that operates manufacturing plants in both the United States and Switzerland. In addition to our domestic production, we are also the largest importer of jeweled watch movements from Switzerland. Our strictly commercial interests, therefore, fall on each side of the classic questions involving domestic production versus foreign imports.

Obviously our company does not oppose Swiss imports. This would indeed be a foolhardy position for us to take. But, as an American citizen, I happen to have a conviction developed out of 40 years of experience in the watch industry, here and in Switzerland, during two wars and the Korean emergency, that a domestic watchmaking industry is absolutely essential to our national security.

I might also remind the subcommittee that I personally am, and have been for many years, a strong supporter of the reciprocal trade program. I am equally convinced that keeping a minimum watchmaking industry alive in this country, in the vital interests of our national security, is not at all incompatible with our foreign-trade program.

PREVIOUS OFFICIAL FINDINGS OF DEFENSE ESSENTIALITY OF UNITED STATES WATCHMAKING INDUSTRIES

Starting about 5 years ago, immediately after the Communist aggression in Korea, it became clear to me that the United States watch manufacturing industry was threatened, not just with some minor injury or loss of a share of the market, but with total elimination. From a postwar peak in 1948, domestic production and employment on watches began declining rapidly as imports increased—imports by 1950 having reached some 75 percent of the domestic jeweled-watch market (subsequently reaching 83 percent in 1954). This was due almost entirely to the ever-widening spread between labor costs here and in Switzerland, such costs constituting 85 to 90 percent of the total cost of a watch movement. Actually Swiss wages had been stabilized by the Swiss watch organizations at a level about 70 percent above prewar, whereas United States wage rates for comparable skilled work had skyrocketed by about 300 percent.

With watchmaking plants in both countries, I knew that this wage differential could not be significantly narrowed, either by increased efficiency or by the then tariff rates. Although the outstanding efficiency and high mechanization of the Swiss watch industry is proverbial, I am proud to say that we had made Bulova's American operation even more efficient than its counterpart in Switzerland. It was also obvious that the then tariff rates averaging \$2.10 could not make up for this tremendous differential, since we could bring in our Swiss 17-jewel watch movements at a landed cost of \$3 to \$4 less than it cost us to make the same model in this country. (I should add that the modest tariff increase in 1954 averaging \$1.05 did not materially change this situation for reasons I shall describe in a moment.)

Faced with these factors threatening total elimination of the domestic watchmaking industry, and having seen what vital wartime contributions our small

industry and my own company's United States factory had made during World War II and Korea, I concluded some 5 years ago that I could no longer remain silent and neutral on one paramount issue. Even though we were, and still are, the largest importers of Swiss movements, I felt that it was my duty and responsibility as an American to warn those in authority in our Government how important it was to our national security to preserve a minimum domestic watchmaking industry by whatever means they might have at their disposal. Even though taking this position might not be in the best commercial interests of our substantial importing business, I decided I could not live with myself unless I did so.

Since that time, various agencies of the Government—in both the legislative branch and the executive branch—have studied this question thoroughly and repeatedly. Without exception, they have all officially and unanimously found our industry to be essential to national defense. The key portions of these official findings have been collected for the subcommittee's convenience and are attached to this statement as exhibit A, but the simple facts can be summarized briefly as follows: Every official finding has been that the unique skills of the industry are critically essential to the national security of this country, and that a healthy minimum level of production of watches is necessary to keep those skills alive. These findings have been made or affirmed by:

1. An interdepartmental committee of the National Security Resources Board under President Truman in 1952-53. (See exhibit A-1.)

2. An interdepartmental committee of the Office of Defense Mobilization in June 1954. (See exhibit A-2.)

3. The Preparedness Subcommittee of the Senate Armed Services Committee in July 1954. (See exhibit A-3.)

4. President Eisenhower in July 1954. (See exhibit A-4.)

5. Secretary of Defense Wilson, Secretary of State Dulles, and numerous other top officials, both Republican and Democratic, and in both the executive and legislative branches. (See exhibit A-5.)

It is therefore difficult for me to see how there can be any real question concerning defense essentiality—other than the recurrent smokescreen that the Swiss importing interests seek to throw up every time they are confronted with the true facts of this situation.

One such smokescreen, in the importers' continuing efforts to becloud and confuse this issue, is the so-called secret report of the Defense Department, which they have consistently peddled as being a suppressed document representing the current and official view of the Defense Department. Actually, as shown by the factual chronology in exhibit B, this document was not secret, was not suppressed, and was not a definitive report of the Defense Department's position. In fact, as indicated by the ODM committee's report and Secretary Wilson's letter of April 28, 1955, even in 1953-54 when this staff study was prepared, it did not present an accurate or complete picture in its own field. Moreover, as exhibit B makes clear, this outdated and incomplete document has long since been superseded by official actions of the Defense Department.

In this connection, I want to point out that despite these repeated official findings that a domestic watchmaking industry is essential to national security, the industry has still found it impossible to maintain a healthy minimum level of domestic production. Therefore, several months ago the Office of Defense Mobilization determined to review again the watch industry's problems. This was because the industry was not only no better off than in 1954, but in fact, much worse. It is threatened with this far worse situation due to the Swiss decision to reverse its long-standing ban and promote "up-jeweling" in order to circumvent the President's tariff decision. This deliberate step on the part of the Swiss destroyed the complete structure on which domestic watch manufacture has stood—namely the market for 21- and 23-jewel watches. This very limited market, admittedly protected, is all that the United States manufacturers had left. I hope the subcommittee will keep this current background in mind as it looks into the subject of defense essentiality, foreign economic policy, and the watch industry.

EFFECT ON OUR FOREIGN ECONOMIC POLICY

It is clear that every official body, executive and legislative, that has looked into this question has come to the same conclusion—namely, that the domestic watchmaking industry must be kept alive as a vital element in our national security.

Despite the unanimous and bipartisan nature of these official decisions, they have been under constant attack by certain highly vocal special interest groups—spearheaded and abetted by the Swiss importing interests and the substantial foreign propaganda funds available to them. Their main argument seems to be that our Government's efforts to keep the domestic watchmaking industry from disappearing completely for defense reasons, will somehow have drastic effects upon our foreign trade and the overall mutual security system of the free world; and anyway, they say, you don't need a base of critical and unique watchmaking skills for defense in the pushbutton war of the future.

On this second point, Gen. Omar Bradley, who knows something about mobilization planning, is much better qualified to give an answer than I. I can only say that it seems to me that these groups who speak for Swiss interests rather than American interests are, consciously or unconsciously, setting themselves up as better judges than our mobilization authorities as to what our defense needs are; and, in effect, they seem to be saying that trade with Switzerland comes first, and American national security comes either second or not at all.

But let us look for a moment at their other argument. I cannot understand why anyone who is willing to look at the subject objectively would knowingly be in favor of jettisoning a truly essential industry just for the sake of our so-called free-trade interests—if they really thought about what was involved.

I wonder, for example, whether such persons have considered that, in the name of free trade, they would end up by turning over the entire United States market for jeweled watches to a foreign cartel that already enjoys a substantial monopoly throughout the free world; I wonder whether they realize that the Swiss cartel, which propagandizes so loudly in favor of free trade, actually refuses to allow any watch parts to be imported into Switzerland. I know this from firsthand experience, since the cartel will not let us bring into Switzerland, for incorporation in our own Swiss watches, in our own Swiss plants, a superior mainspring, and hairspring that we developed in our United States plants. Is this reciprocal trade?

For the Swiss, reciprocal trade in watches means one-way trade on the cartel's terms only. It also means, to the cartel, one-way flow of information. The Swiss frequently use the advertising pages of our free press to state their side of this controversy—financed by the huge propaganda fund that they collect from each of the 36 million watch movements exported from Switzerland every year. Yet when we tried to put a message on this subject by General Bradley in the Swiss press, the cartel saw to it that we were refused. They would not permit our ad to be published in the great bulk of the newspapers of Switzerland. Again, I ask, is this reciprocal trade—or is it fair play, either?

This subcommittee need not go far to note that the Congress itself has specified that international cartels should not be permitted to circumvent our reciprocal trade program. In the 1943 amendment to the Reciprocal Trade Act, the President was empowered to suspend any trade agreement because of acts by other countries, "including the operation of international cartels," that might tend to defeat the purposes of this act.

Finally, I wonder whether the importing interests and their friends have bothered to find out how much, if at all, President Eisenhower's watch decision has really hurt our foreign trade; and how, if at all, it could possibly hurt the mutual security efforts of the free world? Even the most cursory consideration would show that the effect upon our foreign trade, both with neutral Switzerland and with countries that are our allies, has been negligible. And far from hurting the mutual security of ourselves and our allies, the wisdom and necessity of our Government's action to preserve a domestic watchmaking industry for defense purposes is abundantly supported by the positive actions to the same end of the British and French Governments.

In 1945, the British Government deliberately decided for defense reasons to revive its watch and clock industry, the lack of which had been a serious handicap during the war. By a combination of subsidy, quota, and tariff, the British have increased their annual production of watches from virtually 0 in 1946 to about 3,500,000 units in 1955. The French have also recognized the defense importance of a domestic watch industry, and their production has increased from some 1,707,000 in 1948 to about 2,800,000 in 1955. As recently as last November, the French Government officially increased its tariffs on imported watches for national security reasons. (The subcommittee should note also the extent of Soviet Russian production of watches and clocks which, as revealed in the recent Khrushchev speech, has increased from some 7,600,000 units in 1950 to 19,700,000 in 1955—with a target of some 53,600,000 units planned for 1960.)

It is not amiss, also, in this connection to remember that the Swiss are not members of NATO or the U. N., they are not members of GATT, and, above all, we and our allies cannot count on their watchmaking skills and facilities being available to us in the event of another world conflict. If there is ever another war, Switzerland in all likelihood would be engulfed by the forces of communism; in any event it would not be able to maintain its neutrality to the extent of using the Swiss watch industry to supply the high-precision needs of industry in the United States.

I am confident that if the persons who have heretofore swallowed the Swiss propaganda hook, line, and sinker will look fully and objectively into these facts, they will not be so glibly willing to sacrifice the last remainder of this small but vital industry in the name of free trade.

CRITERIA FOR DETERMINING DEFENSE ESSENTIALITY: WATCHMAKING SKILLS A PRIME EXAMPLE

On the specific subject-matter of the subcommittee's inquiry as to criteria for determining defense essentiality, let me say at once that I would agree with those who fear that this factor might become a refuge and umbrella for protectionists. In fact, I believe that a highly selective approach is necessary to avoid broad-scale misuse and subversion of this principle of defense essentiality to the detriment of our overall economic health and security. The industries or segments qualifying for special protection on defense grounds must be limited to a select category that does not preclude the broad flow of healthy trade with our allies. This, I take it, was precisely the approach which Congress had in mind last year when it enacted section 7 of the Reciprocal Trade Extension Act.

Such a selective approach should have as its premise that the type of protection and the occasions for using it must be directly related to actual dangers to national security—and not to mere economic damage suffered by the companies or their employees from import competition. Thus, the mobilization authorities should isolate the hard core of those manufacturing processes or activities that are vital to wartime production and that could not be readily duplicated in time of emergency. Unique in any such selective processing, no matter how strict the standards or criteria, would be the nucleus of critical design, engineering, toolmaking and production skills in the watchmaking industry—skills that take years to train and that are found in no other industry.

Now, for a number of the industrial segments that might be so selected by the mobilization experts, I imagine that an adequate level for mobilization base purposes would not currently be threatened by imports. In other cases, it might well be that any problem due to imports could be met by such useful devices as standby facilities, stockpiling, advance defense contracts, and so forth, without the need to adjust imports.

The watch situation, however, is entirely different. Is there any other industry whose preservation has been repeatedly and officially found to be essential to the national security, and whose share of its domestic market has been reduced to less than 20 percent? Is there another industry whose production and employment have declined so precipitously since 1951 as to be below the security minimum set by the Government, and well below an economically healthy level? And, above all, what other essential domestic industry must fight for survival against a foreign cartel that already controls most of the free world's watch markets, that is constantly seeking for ways and means to circumvent our tariff laws, and that is striving ruthlessly for 100 percent of the United States market, financed by a tremendous propaganda fund raised in a foreign country?

The domestic watchmaking industry is therefore, I submit, absolutely unique in the extent to which its very existence for defense purposes is threatened by imports. It is also unique in that for the watchmaking industry—and perhaps for a handful of others—the more usual types of preparatory mobilization devices I have mentioned will not fill the bill. As found by the NSRB Committee under President Truman, it is the critical and unique skills in the industry that are vital to our security. Skills such as these cannot be put away in mothballs or stockpiled. Nor can they be developed, improved, and kept keen on other work. They can reach and maintain the optimum needed only by actually producing watches, although of course these optimum skills are and will be needed by the military in wartime for far more than watches. In the words of Secretary Wilson, they will be needed "to design and produce very complex timing mechanisms, control devices, gyroscopes, and similar items which must be miniaturized and

ruggedized if they are to be used in modern military equipment." This means that it is the productive activity—actual manufacture of watches—that must be preserved if a minimum base of key skills is to be kept alive.

This is not to say that the remedy is to prohibit the importation of watches, or even a drastic curtailment of imports. It is my own feeling that it is entirely feasible to preserve the domestic watchmaking industry at an adequate and healthy minimum level—and still permit the importers to have the predominant share of an expanding United States market.

Unfortunately, however, the Swiss and the importers, by and large, have not, up to the present time, been willing to accept such a reasonable approach. What they seem to want is 100 percent of the domestic market, and apparently they will stop at nothing to achieve this goal—even if this be at the expense of impairing the national security of the United States. In fact, one of their main current propaganda lines, before this subcommittee and elsewhere, is to try to disparage the importance of preserving unique skills—especially watchmaking skills—as part of the mobilization base.

FALLACY OF IMPORTERS' POSITION

Many of these importer interests admit, as they must, that the unique research, design, engineering, and tool-making skills found in the watch industry are essential. But they assert, contrary to the repeated findings of our mobilization experts, that these specialized skills can be developed and kept alive in some sort of "pool of skills" without having a watch industry. And as for the production and assembly-line workers, they write them off as replaceable by automation or by skills from other industries.

OTHER INDUSTRIES DO NOT HAVE COMPARABLE SKILLS

Although I do not claim to be an expert on the broad subject of the mobilization base, I do know something about the skills you need to design and make watches—and to design and make the tiniest and most complex precision components in our military arsenal. I know that you cannot develop and keep the key skills alive and keen without having a watch industry. I know also that once you dissipate the hard core of these skills—those that take 5 to 10 years or more to train—and once you lose the complex organization and teamwork needed to make the skills effective, it would take years to reactivate them to their present ability.* It is the merest nonsense, and dangerously ostrich-like thinking, to assert, as do the importer interests, that you can somehow have a "pool" of these essential skills without reference to a watch industry in being.

We at Bulova had had some experience in working with other precision industries of various kinds. They are all expert and excellent in their respective fields, but I say categorically that they just cannot match the know-how and the microscopic tolerances that are every-day routine for watchmakers. And these other plants will never be able to do these tiniest precision jobs unless they actually become watchmakers—that is, unless they too go through the extremely difficult and time-consuming processes necessary to the establishment of a domestic jeweled watchmaking plant, processes that I shall describe in just a moment.

Some nonwatch companies do of course make certain parts and perform assembly work on precision instruments and similar items. But all our experience shows that they and the services turn to the jeweled watch industry when they need the most minute components on a volume basis with the promptness and efficiency that war mobilization requires. As was pointed out by an earlier study: "Although there are many manufacturers in this country who can produce fuzes and other precision material, given the time, equipment, know-how and money, their own specialities will be urgently needed by the Government in wartime. The Nation will again look to the watch and clock industry as its immediate and primary sources of precision devices" (Senate Preparedness Subcommittee No. 6 staff study, June 8, 1955, p. 7).

A familiar example is the mechanical time fuze during World War II. Although a number of nonwatch companies participated in the eventual production program, it was the watch industry that did the basic designing and engineering to eliminate a number of difficult "bugs"; it was the watch industry that showed the other companies how to set up for volume production; and it was the watch industry that supplied some of the more complex and tiny parts throughout the whole program.

The same procedures and reliance upon the jeweled watch industry were even more evident in setting up the wartime jewel-bearing industry.

There are numerous other examples of the same sort, where a watch company has solved a tough engineering or research problem, or has broken a production bottleneck, or has succeeded where nonwatch skills have been inadequate. Most of these examples are highly classified, but they are being collected and will be submitted to the ODM in connection with their pending investigation. If the subcommittee is planning any session to receive secret or other classified security information, we will be glad to submit this material at that time.

AUTOMATION AND EFFICIENCY

It is also ridiculous to say, as the Swiss importer interests are now saying, that the need for key skills in watchmaking production processes can be eliminated by "automation." In regard to production operations where automation is feasible, this has already been done to a very high degree in our industry. In fact, I venture to say that our domestic industry has accomplished as much in automation as any industry in the world—not excluding the Swiss—spurred on primarily by the competitive disadvantage of domestically-made watches versus Swiss imports, due to the ever-widening differential in wage rates.

On the other hand, there are a number of manufacturing processes where further automation cannot be achieved. You just cannot dispense with or substitute for certain key skills involving the highly trained coordination of hand, eye, and brain that have been developed so painstakingly over the years.

In this same connection, a favorite contention of the Swiss importing interests and their friends is that domestic watch companies are backward and inefficient. We happen to operate watch plants of the most modern type both here and in Switzerland. I say to you categorically that our operation in this country is more automatized, and more efficient in terms of man-hours per watch, than our Swiss operation making the same items. Actually, a number of improvements, refinements, and shortcuts in our watchmaking operations were first developed in our United States plant and are now used in both our domestic and Swiss production.

DIFFICULTY OF ESTABLISHING A DOMESTIC WATCHMAKING PLANT

As I have indicated, the Swiss importing interests and some of their friends often talk glibly about how other companies can do anything watch companies do. That may be true, provided they are willing to spend the necessary years and the necessary funds in developing the facilities, skills, teamwork, and know-how that are presently unique in the watchmaking industry.

Consider for a moment how long it took us at the Bulova Watch Co. to set up our domestic production operation in the United States—even though we already had a successful, going plant in Switzerland and access to Swiss personnel and machinery that has since been embargoed.

Before 1930, the Bulova Watch Co. was primarily an importer of jeweled watch movements from its plant in Switzerland. In the late 1920's when Bulova stock was first listed on the New York Stock Exchange, some of our banking associates shared with me a concern that some day, in time of war, the company might be cut off from its source of supply in Switzerland. Starting in 1930, therefore, we undertook to build an American unit of production.

This meant not only simply putting up a building or buying a few machines. It meant finding, developing, and organizing a staff of precision engineers with unique experience in the manufacture of devices of such tolerances as is known in no other industry in the world. It meant producing not only the incredibly delicate and complicated parts which go into a watch movement; it meant building the special tools and refined machinery which are needed to make the parts. It meant not only hiring workers; it meant setting up elaborate training programs for craftsmen whose skills could be developed only in years of slow, patient, irreplaceable apprenticeship. It meant setting up 35 different departments involving almost as many different types of manufacture, machines, and tools, in order to make each of the 127 precision parts that go into a fine watch.

The first step in 1930 was the opening of a plant at Woodside, Long Island. At first, this new plant made only bridges and plates—the basic framework of a watch movement—the other parts being imported from Switzerland. Over the next few years, the plant added new production departments. By 1936, we

were making our own pinions, wheels, pallets, setting mechanisms, dials and hands.

After several more years, by 1942, we were making domestically all the parts for jeweled watch movements except mainsprings and hairsprings and jewels. During the war we converted our facilities 100 percent to precision defense work. Shortly after the war, we completed our integrated development, temporarily halted by the war, by adding the manufacture of hairsprings and mainsprings.

It took us, therefore, even with our access to resources in Switzerland, almost 15 years to establish a completely integrated domestic plant for the manufacture of all the parts of jeweled watch movements.

As I look back on this long and complicated development, much of it accomplished during depression years, I realize how fortunate we were—and how difficult it would be for any nonwatch company, or even ourselves, to duplicate this achievement in a similar length of time today or in the future. In 1930, our company was in the unique position of being able to draw upon the experience, know-how and technical skill of our own Swiss plants. We got most of the tools, dies, and machinery from Switzerland. We were able to induce 20 of our key technicians in Switzerland to come over to this country to train American workers.

But such conditions, which made possible the development of a single domestic jeweled watch factory, no longer exist. The Swiss have now forbidden the export of most of the tools, dies, and machinery needed for manufacturing jeweled watch movements. With the present Swiss attitude, and based upon our own experience, I am sure it would take a considerable number of years for any company—and particularly any company without previous watchmaking experience—to organize and train the necessary skills and set up the necessary facilities to develop a complete domestic watch plant. If it took us as long as it did under favorable circumstances to set up an integrated watchmaking operation, how can anyone believe that Eastman Kodak or Bendix or any of the other precision manufacturers outside the watch field could do it overnight, or even within a couple of years?

RESEARCH AND DEVELOPMENT FOR NATIONAL DEFENSE AS PART OF A WATCH MANUFACTURING OPERATION

In December 1950, shortly after the outbreak of the Korean conflict, our company established the Bulova Research and Development Laboratories, now headed by Gen. Omar Bradley. The primary purpose of this organization was to assemble experts in the fields related to timing mechanisms to do research and development for the armed services exclusively.

As a watch manufacturer, we naturally had already a sizable research department tied in closely with our manufacturing, toolmaking, and engineering operations. Many of our key personnel from that department were transferred to the initial group of our new defense research organization. The skills and experience of no less than a dozen Bulova watch engineers, from nine different departments in the Bulova Watch Co., were utilized, for example, in the first development of various guided missile components. Their activities were coordinated by Bulova's chief watch engineer.

As the shortage of competent research groups in timing mechanisms became apparent, and as the volume of defense contracts increased, our company decided to expand its efforts into fields such as aircraft control systems, directional devices, gyroscopic instruments, guided missiles, and ballistics.

The military informed us that we had a most unusual base for research and developmental work, since we were able to combine the knowledge of theoretical scientists with a team of skilled watch engineers. We have had no trouble in attracting scientists of outstanding caliber to the various specialized fields of our research. We have yet to find an instance where the most complicated concepts of the scientist could not be translated into functioning form by our engineers and craftsmen.

The Bulova Research and Development Laboratories include scientists and engineers who have made important contributions, through individual and team research, in many crucial and diverse fields, including the following: micro-wave development, gyroscopics, pulse circuitry computers, electronic instrumentation, miniaturization, solid state physics, stability analysis, fire control, systems concepts, aerothermodynamics, and ultrasonics.

Our production of precision devices for weapons has increased steadily. Our research on future weapons of improved design has been consistently enlarged. Bulova's resources are being called upon more and more by the defense agencies of the Nation. As a result, over the past few years, substantial expansion has taken place in the personnel, production, and technical equipment of the Bulova Research and Development Laboratories.

The same ability and know-how in this research and development field is also true, naturally, of the other domestic jeweled-watch manufacturers, who can undoubtedly give examples of their own. I should also add in this connection that these research and development facilities do not, and cannot, exist in a vacuum. They must have actual jeweled-watch production operations both to justify their existence and to support them financially—and to provide the stimulus for ever-more-precise research into the subminiature fields. There is also real need of coordinated watch production skills and facilities in order actually to produce in volume the items developed by our research and development facilities—no matter how tiny or complex and no matter how close the tolerances.

DEFENSE ESSENTIALITY AS A VALID EXCEPTION TO INTERNATIONAL TRADE POLICIES

Turning now from the special reasons for the essentiality of the watchmaking industry, I should like, as a firm believer in the reciprocal trade program, to discuss briefly the general subject of defense essentiality in relation to imports. In particular, I should like to remind the subcommittee that defense essentiality is not the invention and creature of the protectionists, as has often been indicated by those who have allied themselves with the Swiss. In fact, I was pleased to note that this subcommittee itself, on page 28 of its report last January, stated that there was "a valid argument in favor of trade restrictions to aid national defense."

On this point, the subcommittee is on eminently sound ground, supported by almost every bona fide liberal trade group or document that I know about. Let me mention just a few examples:

Article XXI of GATT, the General Agreement on Tariffs and Trade: Permitting restrictive action against imports to protect a country's legitimate security interests.

Article 99 of the Habana Charter for an International Trade Organization: Similar provision.

Coleman committee (Committee for a National Trade Policy), 1953 proposals for United States policy on world trade: Recognized that "certain industries are truly vital to United States defense," and that there might be need for "special measures * * * in the interest of defense or national security."

"Bell committee" report (1953): Recommended "an extraordinary list where commodities might be placed whose importation, for security or other reasons, should be limited by quotas on other restrictions, or by exceptionally high rates."

United States Council of International Chamber of Commerce, 1953 Report on Expansion of Trade: Noted exception for "the preservation of strategic industries and skills," and stated that, "If progressive reduction threatened to eliminate or unduly diminish the volume of production of domestic industries which are strategically essential to the Nation, provision must be made for the maintenance of those industries and skills."

Committee for Economic Development, 1954 statement on United States tariff policy: Recommended gradual tariff reductions, but excepting "production and productive capacity essential to national security * * * which could not readily be built up after the onset of the emergency."

In addition to the universal recognition by these groups of the need to preserve certain vital industries or skills for legitimate national security purposes, a number of the subcommittee's witnesses last November testified to the same effect, including several who would be considered sympathetic to liberal-trade policies—for example:

Mr. Walter Salant, of the Brookings Institution: Recognized as an exception that "the interests of national defense * * * may require the protection of a particular productive activity."

Mr. Jerry Voorhis, of the Cooperative League: A "really essential" domestic industry "must be maintained."

Mr. Bert Seidman, American Federation of Labor: If an industry is "critical to our national security," the proper minimum level must be maintained "regardless of any other considerations."

CONCLUSION

In conclusion, I can only repeat what I have said several times before. If the United States Government decides that it is not important to have a jeweled watch industry in this country, that is all right with the Bulova Watch Co.—we will import all our watches and probably make more money than we do now. But if the Government really wants to keep a minimum watch industry going in this country—as the mobilization authorities have repeatedly decided is essential to our national security—then let the whole Government get behind that decision, and let's stop having to go over the same arguments year after year.

EXHIBIT A

EXCERPTS FROM OFFICIAL FINDINGS OF DEFENSE ESSENTIALITY OF DOMESTIC WATCHMAKING INDUSTRY

The background and contents of the attached excerpts can be summarized briefly as follows:

(1) By order of President Truman, there was established in 1952 an interdepartmental committee under the chairmanship of the National Security Resources Board, to look into ways and means of maintaining the essential manpower skills of the watchmaking industry. This interdepartmental committee unanimously reported to President Truman, on January 8, 1953, that the watchmaking industry is essential to national security, and that the unique skills involved could be preserved only by continuous application to making watches and parts. (See exhibit A-1 below.)

(2) By order of President Eisenhower, a similar interdepartmental committee, under the chairmanship of the Office of Defense Mobilization, was established in 1953. This interdepartmental committee unanimously reported to President Eisenhower, on June 30, 1954, that "Preservation of the skills of the American jeweled-watch industry is essential to the national security." At that time domestic production had fallen to about 1,700,000 units per year, and the ODM interdepartmental committee report therefore went on to recommend that measures be taken to assure increased domestic manufacture of jeweled watches at a minimum level of "2 million units per year in order to assure an adequate base from which to expand to meet full mobilization requirements." (See exhibit A-2 below.)

(3) The Preparedness Subcommittee of the Senate Armed Services Committee reached this same conclusion in July 1954, by a unanimous vote of its bipartisan membership. The subcommittee stated its conclusion in these words: "The highly skilled workers in the American watch and clock industry, who require long years of training and experience, and their unique ability to develop and produce within the shortest time possible, precision instruments to minute tolerances, are essential to the national defense. Therefore, it is in the interest of national defense to keep this essential industry alive and vital." (See exhibit A-3 below.)

(4) President Eisenhower, on July 27, 1954, restored the rates of duty on certain imported jeweled watches to the levels which Congress had originally enacted in 1930. In taking this step President Eisenhower pointed out that his action would "have an important collateral effect in contributing to the maintenance of a satisfactory industrial mobilization base for the domestic production of watch movements and other precision devices necessary for national defense." At his press conference the next day, the President stated that "we had to preserve certain kinds of skills in the United States." He spoke also of "this ability to deal with very fine tolerances," and added that we should try "to save roughly 20 to 25 percent of our market for our own people in this field." (See exhibit A-4 below.)

(5) In the course of the various hearings and committee studies referred to above, the defense essentiality of the industry has repeatedly been reaffirmed—though defense essentiality has, of course, been questioned by the importers. All of the responsible Government officials who have had occasion to go into this subject, whether Republican or Democratic, and whether in the executive branch or the legislative branch, have agreed with President Eisenhower and President Truman and the Committees which both of them established that this industry is essential to our national security. Testimony to this effect has been given by Secretary of State Dulles, Secretary of Defense Wilson, Director Flemming of the Office of Defense Mobilization, and a number of others quoted in exhibit A-5 below.

EXHIBIT A-1

[NSRB release and unclassified excerpts from NSRB report, January 1953]

EXECUTIVE OFFICE OF THE PRESIDENT

NATIONAL SECURITY RESOURCES BOARD

Washington, D. C., January 16, 1953

Jack Gorrie, Chairman of the National Security Resources Board, released today the results of a special manpower study important to the security of the Nation.

At the request of the President, the National Security Resources Board chaired a committee composed of representatives from the Department of Defense, Commerce, and Labor. This Committee was directed to determine (1) the nature of the skilled manpower requirements which would be placed on the watchmaking industry in the event of full mobilization, and (2) the necessity for and practicability of measures to maintain and develop an adequate supply base of skilled workers in this industry. They embodied their findings in a classified report submitted to the President.

The Committee's analysis made it clear that precision jeweled movements are essential to the security of the Nation in wartime. These are produced uniquely by the jeweled watch segment of the watch and clock industry.

The nature of the skills and the long training time required for the development of key skills in manufacturing jeweled-watch movements make it necessary to keep workers continuously producing these products. This makes the usual standby facilities approach to the problem of maintaining a mobilization base unsuited to the requirements of this situation.

The Committee recommended, however, that the production levels of this industry be kept under review by the National Security Resources Board and that the Government take action if production falls below the safety level.

UNCLASSIFIED EXCERPTS FROM MEMORANDUM, JACK GORRIE, CHAIRMAN, NATIONAL SECURITY RESOURCES BOARD, TO JOHN R. STEELMAN, THE ASSISTANT TO THE PRESIDENT, JANUARY 12, 1953—SUBJECT: THE WATCHMAKING INDUSTRY AND NATIONAL SECURITY

You will recall that the President, in a letter of September 26, requested me to establish an interdepartmental committee with representation from the Departments of Defense, Labor, and Commerce. This Committee was to (1) determine the nature of the skilled manpower requirements which would be placed on the watchmaking industry in the event of full mobilization, and (2) determine the necessity for and practicability of measures to maintain and develop an adequate supply base of skilled workers in this industry.

The Committee has completed its report, which was transmitted to the President today. In the course of the development of this report the Committee consulted also with the Department of State, the Tariff Commission, and the Treasury Department. Representative firms in the industry participated extensively in preparing the basic data on which some of the major findings rest.

The study makes it clear that precision jeweled movements are essential to the security of the Nation in wartime. It was further determined by the Committee that the products of the jeweled-watch industry, namely jeweled clocks, jeweled watches, chronographs, and chronometers, have a very high essentiality rating and are uniquely produced by the firms in this branch of the watch and clock industry.

It was also determined that the usual standby-facilities approach to the problem of maintaining mobilization base is unsuited to the requirements of this situation. The nature of the skills and the long training time required for key skills in producing jeweled-watch movements make it necessary to keep workers actually producing products directly and continuously using these skills.

It is generally agreed that skills developed in producing precision jeweled movements can be utilized on other products and for other industries. However, it is only after long training periods that workers from other industries become qualified to make jeweled movements.

Dissipation of the skills presently employed either by curtailment below a minimum production level of jeweled movements or by transfer to alternative activity not requiring the same order of skills clearly would not be in the interest

of national security. Such skill attrition, of course, is not a serious problem in the short run when skilled workers are temporarily transferred to less exacting work in the same plant. But, if prolonged, such transfer results in loss of skill, workers leaving the plant, and cessation of training. Therefore, it is not sufficient for national security purposes merely to maintain the facilities on a standby basis. It is the skills that must be maintained. This can only be done by actual put-through of watch and clock movements or the parts of such movements.

The Committee therefore concluded that in view of the critical and unique nature of the skills involved, a minimum number of jeweled clocks and watches should be continuously produced by this industry in order to preserve a base of skilled workers upon which expansion could be built in the event of full mobilization. A minimum production range was specified by the Committee and is contained in the classified report.

The Committee was of the opinion that the present level of production was adequate to preserve this base of skilled workers but suggested that the production levels of this industry be kept under review by the National Security Resources Board and that the Government take specific action if production falls below the safety level.

EXHIBIT A-2

[Excerpts from ODM report, June 30, 1954]

A REPORT TO THE DIRECTOR OF THE OFFICE OF DEFENSE MOBILIZATION ON THE ESSENTIALITY TO NATIONAL SECURITY OF THE AMERICAN JEWELED WATCH INDUSTRY BY THE INTERDEPARTMENTAL COMMITTEE ON THE JEWELED WATCH INDUSTRY; JUNE 30, 1954

* * * * *

The findings and recommendations of the Committee are based on the security need to retain an essential skill base primarily for the production of the unique products of this industry and secondarily for the production of other products of which this industry would be an important supplier in the event of full mobilization. The public interest in preserving to the maximum possible extent the industry's freedom of action to solve its problems through its own initiative, free from dependence upon Government, guided the Committee's deliberations (p. 4).

* * * * *

It is therefore, not sufficient for national security purposes merely to maintain the facilities for jeweled movement production on a standby basis. It is the skills that must be maintained. This can be done only by the actual production of jeweled watch and clock movements or the parts of such movements (p. 14).

* * * * *

Past experience, known requirements and reasoned judgment all lead us to conclude that the skills of the jeweled watch industry constitute an essential part of our defense mobilization base. These skills should be maintained at a level from which a quick and effective expansion of production can be made in the event of national emergency (p. 21).

* * * * *

With the allowance of a small safety factor in view of the admitted difficulty of making valid estimates of future requirements, it is the judgment of the Committee that the peacetime production of jeweled watch movements should be at least an average of 2 million units per year, which at current levels of productivity would provide employment for about 4,000 production workers.

Consideration must also be given to the minimum level at which the industry can profitably produce and sell jeweled movements. Statements made by various representatives of the industry have suggested that the break-even points of watch production may be somewhat higher than 2 million units per year.

The Committee has not attempted to determine what is the minimum economic level at which the industry can produce watch movements profitably. It is clear, in any event, that the present downward trend in watch production must be halted and reversed (p. 23).

CONCLUSIONS AND RECOMMENDATION

Conclusions

The Committee concludes on the basis of the information and judgment available to it that:

1. Preservation of the skills of the American jeweled watch industry is essential to the national security.

2. Manufacture of jeweled watch movements should be maintained at levels of production and employment which would enable the industry, in the event of full mobilization, quickly to expand to meet military, defense supporting and essential civilian requirements for items uniquely produced by workers having watch manufacturing skills.

3. It is impossible to determine precisely the exact level of production and employment necessary to assure an adequate mobilization base in the jeweled-watch industry. However, it is the judgment of the Committee that it would be detrimental to the national security to permit further impairment of jeweled-watch production in the United States. It appears probable that domestic production of jeweled watches should be maintained at not less than an average of 2 million units per year in order to assure an adequate base from which to expand to meet full mobilization requirements.¹ The Committee recognizes that this minimum level for preservation of key skills may not be sufficient to assure that production in the industry will be an economically feasible operation.

4. The levels of production and employment in jeweled-watch manufacturing are now below the levels which would enable the industry to expand quickly and effectively to meet the requirements of full mobilization.

5. The downward trends of production and employment in the industry are likely to continue, thereby further impairing the industry's base of critical facilities and skills, unless the Government acts to create conditions favorable to higher levels of production and employment in the industry.

Recommendation

In the light of the foregoing conclusions, the Committee recommends that the Government take actions which will create conditions favorable to the continued manufacture of jeweled-watch movements by the American jeweled-watch industry at a level which will maintain an adequate base of skilled manpower capable of expanding to meet full mobilization requirements (pp. 28-29).

EXHIBIT A-3

[Senate Preparedness Subcommittee report, July 23, 1954]

REPORT OF PREPAREDNESS SUBCOMMITTEE NO. 6 ON THE ESSENTIALITY OF THE AMERICAN HOROLOGICAL INDUSTRY

On May 22, 1954, Senator Leverett Saltonstall, chairman of the Senate Committee on Armed Services, established Preparedness Subcommittee No. 6 to study the essentiality of the American horological industry to national defense.

The subcommittee, directing its attention solely to the question of defense essentiality, held hearings on June 30, July 1, and 2, 1954. The subcommittee received evidence to the effect that:

The watch and clock industry has a unique pool of skilled workers, some of whom require up to 10 years of training and experience before they achieve professional proficiency in their precision crafts;

The Nation has historically called upon this skilled pool of workers from the watch and clock industry in time of war as its primary source of precision timepieces, military precision timing devices, and for the development and production of other essential miniature instruments;

In times of emergency, the Nation cannot safely rely on foreign precision timepieces, other precision timing devices, and jewel bearings needed for defense requirements;

Unless the training and employment of this skilled pool of workers in the horological industry are continued, the pool of workers cannot be maintained intact. Their unique proficiencies and skills would deteriorate in industries requiring less highly developed skills and the particular skills required in time of war emergency would not be available.

¹ It is the opinion of the Department of Commerce that an annual production of not less than 3 million units is necessary to provide an adequate mobilization base.

An abundance of expert testimony was heard by the subcommittee. The testimony was in almost unanimous agreement that the pool of skilled workers of the American watch and clock industry is essential to the security of our country in time of war.

As stated above, the subcommittee has confined its study and confines its report to the precise question propounded by its charter—the essentiality of the industry to national defense.

On all the evidence, the subcommittee concludes:

1. Although the Nation was substantially self-sufficient in the production of precision instruments required for defense in World War II, it must be remembered that the Nation had over 2 years to prepare for war.

2. A future war may come swiftly and without advance notice. In such an event, there will be no time to provide training in the highly specialized and critical skills needed to produce the precision timing devices for defense requirements.

3. The highly skilled workers in the American watch and clock industry, who require long years of training and experience, and their unique ability to develop and produce within the shortest time possible, precision instruments to minute tolerances, are essential to the national defense. Therefore, it is in the interest of national defense to keep this essential industry alive and vital.

EXHIBIT A-4

[President Eisenhower's statements, July 27-28, 1954]

EXCERPT FROM WHITE HOUSE PRESS RELEASE, JULY 27, 1954

The White House press release pointed out that President Eisenhower's tariff action under the escape clause would have "an important collateral effect in contributing to the maintenance of a satisfactory industrial mobilization base for the domestic production of watch movements and other precision devices necessary for national defense."

The next day, in answer to a question put to him at his press conference on this defense aspect, the President said that:

"... from the standpoint of defense, it seemed to him that we had to preserve certain limits of skills in the United States. A particular skill was this ability to deal with very fine tolerances, very close tolerances, very fine work. And when he looked at the record of the number of men that had been employed in these industries only a matter of 2 or 3 years ago, and what were now employed in this area, it seemed to him that was a collateral reason for trying to save roughly 20 or 25 percent of our market for our own people in this field." (From transcript of President's press conference, New York Times, July 29, 1954.)

EXHIBIT A-5

Secretary of State Dulles: "Well, our action on Swiss watches helped to preserve a mobilization base in that industry, a sufficient vitality in the industry so that in case war came and we were cut off from the arts and skills of Switzerland, there would still be a residuum that was needed for this country in this country. I do not know any way we can allay their fears in that respect." (Testimony at hearings on H. R. 1, House Ways and Means Committee, January 17, 1955, p. 71.)

Secretary of Defense Wilson: "I do not think we should ever handle our business so that what you call an industry is down to where we might import 80 percent of our requirements and make 20 percent in our country. I would not agree with that. I would not think that would be a very sound program." (Testimony at House hearings on H. R. 1, January 18, 1955, pp. 194-195.)

"I think the general tide ought to be toward a gradual reduction and improvement over the world. But you take the jeweled-watch business. The competition from the Swiss had been so effective that our watch industry was down to where we were producing 20 percent of our requirements.

"I didn't think that was right, and I particularly didn't think it was right when it involved especially skilled people that we might need very badly. So the Defense Department took a definite position on that, and that one was

raised. I think that you have to keep looking at each one on its own." (Senate hearings on H. R. 1, March 15, 1955, p. 134.)

Hon. Harold Stassen, former Foreign Operations Administrator: "I think what it [the watch decision] did was to show clearly that we would not permit the United States watch industry to be completely destroyed, that we wanted a United States watch industry, that they could have a very substantial Swiss market here, coming up to about 60 percent of our total United States use of watches, but they could not come up and take 80 or 90 percent of it. I think that is what it meant. I think it was an important thing to get it clearly understood and establish it * * * In other words, it is a good thing for America and the world that you have this tremendous skill in the production of watches in Switzerland. But you must limit imports so that you have a United States watch industry also with a chance to stay alive.

* * * * *
 " * * * it was in the United States interest that you put up a little higher differential in order that you would not have the Swiss watch taking too great a percentage of the total United States business and thereby making it impossible to keep a United States watch industry with all of its defense characteristics and employment characteristics."

* * * * *
 "The purpose was to have a substantial importation of Swiss watches but not an overwhelming importation so that you would injure the maintenance of a domestic watch industry at a level consistent with United States defense and economic policy" (House hearings on H. R. 1, Jan. 19, 1955, pp. 234, 235, 238).

Hon. Arthur Flemming, Director, Office of Defense Mobilization: "Is the preservation of the skills of the American jeweled watch industry essential to the national security? My answer to that question is unqualifiedly 'Yes.' * * * Is production and employment in the industry at such levels as seriously to threaten preservation of those skills? And on the basis of the evidence that has been presented to me, there is no question in my mind at all but that that question must also be answered in the affirmative" (hearings, Senate Preparedness Subcommittee No. 6, June 30, 1954, p. 34).

Hon. Thomas P. Pike, Assistant Secretary of Defense (Supply and Logistics): "In conclusion I wish to reaffirm the vital essentiality of the horological industry for defense."

* * * * *
 "In general from the standpoint of the Department of Defense, and speaking strictly to the national security, the national defense angle of this problem, I can wholeheartedly concur in the general conclusion reached by Dr. Flemming in regard to the entire horological industry * * *. There is no question but that the skills involved * * * are vitally essential to our national defense in the event of mobilization" (hearings, Senate Preparedness Subcommittee No. 6, June 30, 1954, p. 40).

Hon. Lothair Teetor, Assistant Secretary of Commerce for Domestic Affairs: "These companies (domestic jeweled watch manufacturers) have no counterpart in American industry. Other manufacturing plants occasionally work to tolerances as close as the jeweled watch manufacturers but do not apply these tolerances to such minute parts on a continual mass production basis. The highly specialized skills of this industry are the product of generations of research and development and cannot be considered as interchangeable with any other industry."

* * * * *
 "The Department of Commerce, with particular emphasis on its responsibilities for mobilization planning and assuring adequate production capacity to meet essential civilian needs, supports the position that serious damage would be done to the wartime strength of the United States if our domestic facilities for the manufacture of jeweled watches are permitted to deteriorate below the levels determined to be adequate for wartime expansion" (statement at hearings, Senate Preparedness Subcommittee No. 6, June 30, 1954, pp. 45, 50).

Senator Walter F. George: " * * * I should like to express the strong conviction I have always had that the domestic watchmaking industry is indispensable to our national security * * *. It would be a national catastrophe, in my judgment, should the making of jeweled watches in this country be allowed to cease" (letter to Senator Duff, hearings before Senate Preparedness Subcommittee No. 6, June 30, 1954, p. 5).

Senator John F. Kennedy: "* * * those domestic industries which are vital to the defense and security of this country must be maintained in such a condition of readiness that in the event of a major national emergency, those essential industries will be able to assume immediately the roles required of them in our total national effort. I must certainly conclude from all of the statistics and information that have come to my attention that the jeweled watch industry is in this category * * *."

"* * * the present trend in national policy is toward the promotion of international trade and the lowering of tariff barriers. However, the watch industry, the optical industry, and any other industry requiring the services of highly specialized and highly trained personnel who can be brought to the stage of training necessary only after many years of apprenticeship and development deserve special attention" (statement, hearings before Senate Preparedness Subcommittee No. 6, July 1, 1954, pp. 127-128).

EXHIBIT B

THE SO-CALLED SECRET REPORT OF THE DEFENSE DEPARTMENT

FACTUAL CHRONOLOGY

(1) This report was really a staff study made within the Defense Department during 1953 and early 1954. It was but one of a number of such staff studies submitted to and considered by the ODM Interagency Committee in formulating its overall conclusions.

(2) On the basis of all these studies, the ODM Committee concluded without qualification that the jeweled watch industry was essential, and was then operating below a safe minimum level. Their report was unanimous, being concurred in by the official representative of the Defense Department, among others, and was recommended to the President by Dr. Flemming.

(3) Far from being "secret," the substance of the Defense Department staff study was incorporated, in proper context, in the ODM's final report dated June 30, 1954. It was also transmitted at this time to members of the Senate Preparedness Subcommittee and other interested Government officials.

(4) On June 30, 1954, Assistant Secretary of Defense Pike testified before the Senate Preparedness Subcommittee that he "wholeheartedly concurred" with Dr. Flemming's conclusion as to the defense essentiality of the domestic watch and clock industry.

(5) On July 1, 1954, Assistant Secretary of Defense Ross officially advised the Bureau of the Budget by letter that the Department was "vitaly concerned" with the defense aspects of the industry.

(6) On July 27, 1954, President Eisenhower announced his tariff decision, indicating his wholehearted concurrence with the defense essentiality of the jeweled watch industry.

(7) In January and March 1955, Secretary of Defense Wilson testified unqualifiedly before the House Ways and Means Committee and the Senate Finance Committee in support of the President's decision from the standpoint of defense essentiality.

(8) In March 1955, at the request of a Member of Congress, the 1953-54 staff study of the Defense Department was declassified. It was immediately publicized by the Swiss importing interests and those who speak for them as a definitive and hitherto "secret" or suppressed report—as if it superseded all the earlier official pronouncements and decisions of the Department.

(9) On April 28, 1955, Secretary Wilson, in a letter to nine interested Senators, placed this report in its proper context, and vigorously reaffirmed the official Defense Department position that the entire horological industry was "essential to the mobilization base."

The staff study was thus not "secret," not suppressed, and was not a definitive report of the Defense Department's official position.

Representative BOLLING. Thank you, Mr. Bulova.

Our next witness requires no introduction. He is General of the Army Omar Bradley, and he appears in his capacity as chairman of the board of Bulova Research and Development Laboratories, on Long Island.

So famous a soldier requires no introduction, to this group or to any group in the United States or the world. We are particularly proud to have you with us, sir, because we are proud of you as Missourians.

Senator DOUGLAS. We are proud of him for the United States of America.

**STATEMENT OF GENERAL OF THE ARMY OMAR N. BRADLEY
UNITED STATES ARMY, RETIRED), CHAIRMAN OF THE BOARD,
BULOVA RESEARCH AND DEVELOPMENT LABORATORIES**

General BRADLEY. Thank you, Mr. Chairman, Senator.

Mr. Chairman and members of the committee, before I start my statement, I might say that in spite of the fact that I don't always look forward to testifying before committees of Congress, I would rather be here than where I was 12 years ago today.

I believe it is important to explain at the outset both the position which I presently hold and my reason for being interested in this subject of the essentiality of the watch-manufacturing industry to national security.

At the present time I am chairman of the Bulova Research and Development Laboratories, a wholly owned subsidiary of the Bulova Watch Co. These laboratories were organized early in 1951 for the purpose of helping develop defense items, particularly those in which watch-manufacturing skills would be helpful. Among my reasons for accepting this position rather than some other was the fact that these laboratories were engaged in research on defense projects. For example, right now we have some 40 projects in the laboratories, about half of which are parts of guided missiles or rockets. I feel that I am still contributing to national defense. I am also a stockholder of the Bulova Watch Co.

By way of further background let me add the following:

Immediately after World War II, when I was serving as Administrator of Veterans' Affairs, I had occasion to work with Mr. Arde Bulova and the Bulova Watch Co. in the setting up of the Joseph Bulova School of Watchmaking—a school where a large number of paraplegic veterans have been trained, at no expense to the Government, in the highly intricate work of repairing watches—a skilled calling which these veterans have been able to master in spite of their disabilities, and a skilled calling by means of which they have been restored to happy and useful lives and have been enabled to earn a good living for themselves and their families.

Still later, after the Communist invasion of Korea, I had occasion to see once more the many contributions which the watch industry could make, and did make, to our national security.

This, in general terms, was the background of my knowledge of the watch industry at the time that I completed my tour of duty as Chairman of the Joint Chiefs of Staff.

Since the time that I took off my uniform, I have, as I have already indicated, had the privilege and opportunity of learning a great deal more about the industry, in my capacity as chairman of the Bulova Research and Development Laboratories.

Having worn the uniform of my country for 42 years, 38 of which were as an officer, my primary concern is the proper defense of this

country. When in the grade of major, I served 3 years in charge of the weapons section of the Infantry School where we worked daily with many types of weapons. Here I sometimes worked with the Infantry Board in the testing and development of new equipment. I learned to appreciate the quality and reliability of weapons. Again, in combat in World War II in Africa, Sicily and Europe, the reliability of weapons was impressed upon me. In fact, I would not be here today if one piece of enemy equipment had not failed to function. An Italian mine which my jeep ran over failed to explode.

As new weapons, such as rockets and guided missiles, are developed, we find them getting more complicated and more expensive. There are more parts and many of these must be as small as practicable in order to keep down weight and overall size. Each part must be as reliable as we can make it. If a small-caliber cartridge or an artillery shell fails to function we have lost a few cents or a few dollars, but if a rocket or guided missile fails to function, we may have lost a very expensive item plus the cost of delivering it. Of even more importance, we may have jeopardized our survival by failing in a mission.

In other words, we need today even a greater degree of precision, quality, and reliability while we are at the same time tending toward a greater need for miniaturization.

In terms of these military needs, and in terms of what the watch industry can and does do about filling many of these needs, my own view can be summed up in one brief sentence: Maintenance of a domestic watch industry is essential to the security of the United States.

When you come to the question of the level at which the industry should be maintained, I can see where reasonable men may differ. Should the domestic industry be less than one-tenth as big as the Swiss industry, or should it be one-fifth as big? Should the domestic manufacturers account for less than one-fifth of the United States market for jeweled watches, as has been the case in the recent past, or should domestic manufacturers account for approximately one-third of domestic sales, as the domestic industry has suggested to ODM? I can see that this question of level of domestic production is, as I have indicated, a question on which reasonable men may differ. I do not believe, however, that reasonable men can differ on the basic issue of defense essentiality—for in my judgment, any reasonable man who approaches this matter objectively is bound to reach the conclusion that maintenance of a domestic watch industry, at whatever level national defense may require, is essential to the national security of the United States.

This, in fact, is the conclusion that has been reached by every official group that has looked into this subject up to the present date. This conclusion was reached unanimously by an Interdepartmental Committee set up by the National Security Resources Board on orders of President Truman. This same conclusion was reached unanimously by an Interdepartmental Committee set up by the Office of Defense Mobilization under President Eisenhower. This same conclusion was reached, both unanimously and bipartisanly, by the Senate Preparedness Subcommittee of the Senate Armed Services Committee. And while this particular aspect may be beyond the scope of this committee's hearings, I think it may be of interest to the committee that this same conclusion—namely, that a domestic jeweled watch industry is essential to national security—has also been reached by both of our

great allies of the Western World, the United Kingdom and the Republic of France.

Can we afford then to lose our few remaining skilled workers who manufacture watches? These are the workers who, above all others, are capable of approaching the ultimate in precision and miniaturization. I believe your committee is aware of the fact that we have only some 4,000 people in this country now engaged in the manufacture of watches as compared to more than double this number engaged in such manufacture only 7 or 8 years ago. I know that there are some who contend that companies other than watch companies can attain the same precision and miniaturization. I do not believe this is borne out by history or experience. Some companies can approach these requirements and, given a number of years in which to develop tools and train personnel, some of them could probably make watches, or attain comparable training and skills. But are we going to have that time in an emergency?

I think it might be well to examine some historical facts. During World War II, the Bulova Watch Co. converted 100 percent to war production. A great part of its production was in high precision instruments, jewel bearings, and fuzes.

I believe the committee knows that during World War II the only companies able to make the machines for the production of jewel bearings were those companies who were capable of making watches, i. e., Bulova, Elgin, and Hamilton. As you know, this country uses millions of jewel bearings each year in watches and instruments. The number used in the instrumentation of each bomber runs into the thousands. When our source of supply, Switzerland, was partly cut off during the war, it was necessary to produce them here.

If there should be a major emergency in the future, there is a strong probability that Switzerland might be cut off completely and be unable to furnish us with either watches or jewel bearings. Thus we cannot afford to be without the skills of the watch manufacturing industry. Great Britain found herself in that position during the last war and had to turn to us for help. After the war that country decided that a watch manufacturing industry was essential for national defense and declared that never again would she be caught without such an industry. England, in trying to build up a watch industry, is now subsidizing it as part of her defense program—and relies also upon quotas and tariff to achieve the desired result. In France, much the same thing has happened—with primary reliance placed upon quota and tariff.

Likewise, Russia has developed a watch and clockmaking industry and Khrushchev, in a recent major address, emphasized the importance of the industry by announcing that Russia is expanding the industry still further, from a present level of 19 million units to a 1960 goal of 33 million units. Moreover, according to the New York Times, these new Russian factories are being located at Tcheliabinsk, in the Ural Mountains, 1,200 miles from Moscow.

I might add that in their choice of location, they must consider these factories as part of their industrial preparedness program.

I have a chart here showing the production of watches in various countries. On the left is shown the number of Swiss watches exported, which built up to a high level, then declined somewhat in 1954.

Russia, the part of the chart in red at the bottom, shows the big increase in 1954 and the goal for 1960.

The United States, on jeweled watches, you will notice the black part going gradually, steadily down.

Great Britain, since the war, shows on the chart as increasing gradually, steadily.

France, increasing more or less steadily, with a slight decline for 1 year.

You will notice that in the United States the production of jeweled watches in particular, has gone steadily down over the last few years.

(The chart to which General Bradley referred is reproduced at p. 115.)

General BRADLEY. The Office of Defense Mobilization in a report dated June 30, 1954 stated "that the skills of the jeweled watch industry constitute an essential part of our defense mobilization base. These skills should be maintained at a level from which a quick and effective expansion of production can be made in the event of national emergency."

All of the other official groups who have looked into this subject have, as I have already said, reached this same conclusion.

One might ask then why it is necessary to keep examining the subject. I believe it would be safe to say it is because ever since the President of the United States decided the watch-manufacturing industry was an essential part of our industrial preparedness and authorized a slight increase in some watch tariffs as a means of trying to save this remaining watch-manufacturing capacity, the Swiss have done everything they could to circumvent and nullify that decision. They have spent a lot of money in this country trying to influence public thinking. They have resorted to practices—generally referred to as "upjeweling"—which they themselves as recently as 2 years ago described as "disloyal competition." For example, one of their schemes is to ship in 17-jewel watches—on which the tariff is lower—which are so made that additional jewels can be easily inserted and the watch sold as a 21- or 23-jewel watch. Another scheme is to ship in separately a self-winding mechanism which can be added to the 17-jewel watch thus making it into a self-winding watch of 21, 23, or 25 jewels. In each case they defy the intent of our Government's decision, deprive the Treasurer of legitimate receipts which Congress originally enacted, and in the course of doing these things drive our domestic watch-manufacturing industry out of business, with a resultant injury to our national security.

Switzerland is certainly not a poor country. Her financial interests are spread throughout the world. We are apt to think of her only as a watch-producing nation or a fine place for tourists. I understand watches comprised only 4.6 percent of her national income in 1955. Watch exports to the United States comprised only 1.3 percent of Switzerland's national income for 1955.

This chart which we have just displayed here, gives the percentage of Switzerland's income that represents her watch exports to the world, and to the United States, beginning in 1946, up to 1955. I suggest that any slight effect on the 1.3 percent of their income that comes from watch exports to the United States wouldn't affect their national economy very seriously.

(This chart is reproduced at p. 114.)

General BRADLEY. In an attempt to tell something about the defense implications of our watch-manufacturing problems, we ran an advertisement in some American papers. We tried to run this advertisement in several Swiss newspapers, and were informed that all but one refused to carry it. The one exception, a German language paper not located in the watch-manufacturing area, was subsequently attacked by the other papers for having carried an American advertisement. This is not a very good example of free speech. We often hear about the neutrality of Switzerland and how they are defenders of freedom. It is difficult to see how they can be of any assistance to us in any future major war. They have not joined NATO nor would their production be available to us. It probably would be available to our opponents as it was in World War II.

It is difficult for me to understand why they insist on obtaining 100 percent of our watch business. Approximately 80 percent of the jeweled watch movements sold in this country are made in Switzerland. Last year Swiss production was some 36 million watches as compared to 33½ million the year before. Our increased tariff certainly has not put them out of business. Even then, I understand that in some watch production centers there are not sufficient workers in Switzerland to fill all available positions. They have been importing labor from Italy. The sale of jeweled watches in this country amounts to some 10 million per year. I suggest that it is not asking too much of them to let us make approximately one-third of these watches in the United States.

In addition to the attitude of Switzerland we must consider the actions of our own American importers, particularly those who are 100 percent importers. At the present time jeweled watches are being produced in the United States by only three companies, Bulova, Elgin, and Hamilton. Even these companies import part of the watches they sell.

There are many companies who import all of their watches and have no watch manufacturing capacity in the United States. They object to the increase in tariff which was ordered almost 2 years ago in an attempt to save part of our watch manufacturing capacity. Maybe they can offer another solution to our defense requirements. So far, I have not heard of any such proposed solution nor am I aware of any capability on the part of most of them to contribute anything to our industrial preparedness. What good is a little extra profit if by making that profit we risk the possibility of losing everything, including our freedom?

I might add that there are doubts in my mind that the small increase in tariff will save the domestic watch manufacturing industry. Since the 1930's when our tariff law was passed, the wages paid Swiss watch-makers have been held down by rigid governmental and cartel control. Obviously, what was considered a proper tariff level then is not sufficient at present.

There is an additional principle involved here, and that is the one of monopoly. In the United States, we have consistently frowned upon monopolies. We show concern if any one of our industries

secures too large a percentage of our total domestic market. Aside from the industry's essentiality for defense, I suggest that we ought not give the Swiss cartel a monopoly over the American watch market. We would then be faced with a monopoly outside our country over which we would have no control and which would take years to correct if we tried to restore the lost art of watch manufacturing.

We are discussing the essentiality of a domestic watch manufacturing industry. The word "essential" is a strong one, but in my opinion the maintenance of a watch manufacturing industry in this country, producing a reasonable percentage of our watch requirements, is an essential part of our industrial preparedness.

There are some who argue that there is no need for a mobilization base—that we do not need any industrial preparedness for mobilization purposes. They declare that any future world war will be a short one and will be won or lost in a few days with the equipment on hand on D-day. Such might be the case if one side allows itself to become hopelessly weak, relatively. Certainly if we do not have adequate strength in being we might be so crippled that we could never regain sufficient strength to win.





















Only a few years ago planning for the future was my principal duty. I have given this matter a lot of thought. As first glance it appears that modern offensive weapons have become so destructive that a future war must be short as one or both sides will soon be reduced to inability to carry on. Prior to World War II, I was inclined to believe in the same theory. Even then we had great destructive power, though it did not approach what we have today. This theory turned out to be entirely false; the war lasted almost 6 years. Humans can undergo great hardships to retain their freedom. Furthermore, defensive weapons have a way of keeping approximate pace with the offensive. I can visualize a future war lasting anywhere from a few days to many, many years, even with hydrogen bombs and intercontinental missiles. Do we dare assume the correctness of one theory to the exclusion of the other? If we reject all industrial preparedness, then we lose even if our state of readiness secures us an equality and standoff in the first stages. With no mobilization base we might win or lose a short war—but we would surely lose a war that was not settled in a few days.

But even assuming that we need no industrial preparedness after D-day of a world war, I contend that more than ever we need to maintain every skill which will contribute to that D-day state of preparedness on which such a theory would stake everything. The watch manufacturing industry is contributing materially to the development of the most up-to-date offensive and defensive weapons. As a citizen who has studied all angles of offensive and defensive warfare, future as well as past, I hope that we will not allow our American watch manufacturing skills to go down the drain.

Representative BOLLING. Thank you very much, General Bradley. (The chart submitted with General Bradley's statement is as follows:)

WATCH EXPORTS AND NATIONAL INCOME OF SWITZERLAND

(in millions of francs)

	NATIONAL INCOME	WATCH EXPORTS TO THE WORLD	WATCH EXPORTS TO THE U.S.
1955	23,500	4.6% 	1.3% 
1954	22,010	4.7% 	1.4% 
1953	20,970	5.3% 	1.9% 
1952	20,360	5.3% 	1.8% 
1951	19,500	5.2% 	1.6% 
1950	18,160	4.0% 	1.4% 
1949	17,360	4.1% 	1.3% 
1948	17,616	4.2% 	1.5% 
1947	16,842	4.6% 	1.5% 
1946	15,033	4.0% 	1.8% 

Representative BOLLING. Our next witness is Mr. William McMor-
row, president of the Waltham Watch Co.

Mr. McMorrow, you may proceed as you wish.

STATEMENT OF WILLIAM H. McMORROW, PRESIDENT, WALTHAM WATCH CO., WALTHAM, MASS.

Mr. McMORROW. My name is William H. McMorrow, and I am
president of the Waltham Watch Co., of Waltham, Mass.

It is a privilege for me to appear here and to supply you with some
facts concerning the situation of the Waltham Watch Co.

There have been frequent references in the testimony here to the domestic watch industry as consisting of three companies. Waltham was excluded from mention as being part of the domestic industry.

Let it be understood, gentlemen, that the Waltham Watch Co. today is in the business of producing jeweled-lever watches in its plant at Waltham, Mass. The Waltham Watch Co. has had its troubles in the past. It is perhaps not unique in the respect. But we retain today the physical plant, machinery, dies and tools which enabled our company to supply more than 25 percent of the precision timepieces required by the military services in World War II. Our plant and facilities are in good order.

We are fortunate to have also a rounded complement of managerial, engineering, supervisory, and production workers whose efforts have produced a profitable operation for the company in 4 out of the past 5 years.

Waltham has suffered a loss in its employment of skilled personnel; but so have other domestic watch manufacturers. Because of circumstances which belong to the past, Waltham's losses may have been somewhat larger than certain of the other three companies.

The important point for this committee to consider, however, is that the Waltham Watch Co. today is still in the business of manufacturing jeweled-lever watch movements and related products for the United States market.

We believe that during the past 5 years we have made a larger proportion of the jeweled-lever precision timepieces required by the Defense Establishment than any other single domestic manufacturer. This is in addition to our manufacture of commercial jeweled-lever watches.

At the same time, however, the company has devoted considerable of its recent efforts to the field of gyroscopes and related instrumentation. Our performance to date in the manufacture of vertical gyroscopes is concrete evidence of the adaptability of our manufacturing skills and techniques to master these difficult production items.

The Waltham Watch Co. today has sufficient resources to demonstrate a developmental capacity which we believe to be characteristic of all of the domestic watch manufacturers. Without the benefit of military research and development contracts, we are now developing on our own a line of gyroscopic instruments which range from sub-miniature units to those of more conventional size.

We have found that the skills and aptitudes of our engineers, our tool and die makers, and our assembly people have enabled us very quickly to move from the drawing board to completed units.

The thing which is taking place in our gyroscope development program is the application of a jeweled watch company's unique capacity to design, engineer, and tool to mass-produce to close tolerances complex assemblies which must operate with precision and dependability.

We could not today, with our existing complement of personnel, expand our production quickly to the level of our World War II performance, though we have adequate physical facilities to do so. It would be necessary for us to recall the many skilled workers who have reluctantly left the Waltham Watch Co. and to spend some period of time in assisting them to restore their skills to their former level of proficiency, but we could do this in a vastly shorter period of time

that would be required if we had to recruit people who had never worked in a watch plant and train them to take their place.

If a firm program is established by the Government at this time for implementing the essentiality of the domestic jeweled watch industry, Waltham can once again be the source of strength in the production of timepieces and other critical items that it was in prior emergencies, and that it needs to be if we are to have an adequate mobilization base for the emergencies which may lie ahead.

Representative BOLLING. Thank you, Mr. McMorrow.

We have been informed that Mr. James G. Shennan, the president of the Elgin National Watch Co., of Elgin, Ill., has suffered an accident, which prevents his attendance, although he had every expectation of coming.

In his place, the Elgin Watch Co.'s general counsel, Mr. L. A. Mote, will present a statement. I hope, Mr. Mote, that you will convey our regrets to your president, and we welcome you in his place.

STATEMENT OF LeROY A. MOTE, SECRETARY AND COUNSEL, ELGIN NATIONAL WATCH CO., ELGIN, ILL.

Mr. MOTE. Thank you.

My name is LeRoy A. Mote. I am secretary and counsel of Elgin National Watch Co. I have been employed by Elgin since 1937. My legal duties have encompassed competitive problems arising out of customs laws and regulations, and my general responsibilities in connection with the patent work performed by outside counsel have kept me in touch with technical developments.

I am, as your chairman has said, appearing for Mr. James G. Shennan, our president, who only last Sunday suffered a recurrence of a sacroiliac ailment. He has asked me to express his regret at not being here and to summarize for you the following statement which he had planned to make:

To the extent that what is essential about our industry may shed some light on how to measure defense essentiality generally, or suggest to you some criteria of general application, we are glad to describe for you those things which are unique about our industry, and to share with you some of our defense work experiences.

Of course I can speak only of the watch industry. The pattern of other essential industries may be quite different, and suggest quite different criteria. The views of other defense industries should, therefore, it seems to us, also be sought if the subcommittee's study is to be meaningful.

Others here today will discuss the industry's relationship to the problems of foreign economic policy. I shall confine my remarks to defense essentiality criteria.

DEFENSE ESSENTIALITY OF WATCH INDUSTRY WELL ESTABLISHED

The defense essentiality of the domestic jeweled watch industry has been studied frequently, exhaustively and recently. All of these have ended by affirming the almost self-evident fact of essentiality.

At this point I would like to insert in the record a partial list of such studies, reports, and letters (including excerpts taken from them)

occurring between the years 1944 and 1955, all of which resulted in findings of essentiality. That is the second attachment to the statement before you. This list of more than 30 items contains eloquent testimony of the industry's importance to national defense, and includes many letters from Navy and Army personnel as well as reports of the National Security Resources Board during the Truman administration and the Office of Defense Mobilization during the present administration.

GENERAL CRITERIA OF ESSENTIALITY

Something about the jeweled watch industry has led all of these people and groups to the same conclusion. I don't know the exact criteria they may have used, but I believe I can suggest valid criteria based upon the operations and experiences of the industry.

1. Since the Defense Production Act of 1950 has directed the use of incentives to create new capacity required for national defense, it is obvious that if new capacity has been created pursuant thereto that capacity is essential. The domestic industry has created over \$10 million of new capacity under such incentives during the present emergency.

2. If the armed services identify a mobilization need for specific products and give a domestic producer an M-day assignment for its production in an existing plant, that plant's capacity for meeting the M-day assignment is essential to national defense, particularly if its facilities or capacity for such production are unique in American industry or substantially superior to those of others. (See attachment I.) The domestic jeweled watch industry has some 70 M-day orders from the military totaling well over half a billion dollars. This figure, of course, does not include the tremendous volume of defense work which, based on World War II and Korean experience, we will be called upon to do as subcontractors, nor does it include the production of other items not now contemplated.

3. If an industry regularly performs basic research and development work for the armed services and there is a direct relation between its capacity to perform such research and development and a profitable base of production activity, its continued existence on a level adequate to sustain the research and development capacity is essential to national defense. The domestic watch industry presently is working on research and development contracts of an aggregate value of \$11,735,000 for whose performance we are directly dependent on the research laboratories which derive their long-term support from our watchmaking operations.

4. If an industry is the only producing source for a military end item, defense supporting item, or essential civilian item; or, if it is the only source capable of producing such an item in any realistic period of time upon the occurrence of an emergency, it is essential to national defense. The domestic watch industry is in this position with respect to jeweled lever timing devices.

5. Even though there be other industries which could in time be upskilled to do the same work, if a particular industry is regularly producing an item of military, defense supporting or essential civilian importance, and it has no other mobilization assignments which would preclude its production of the item in an emergency, it rather than the

industry which would need to be upskilled is essential to national defense.

The foregoing general criteria all involve judgment on the grounds of experience. Added tests of essentiality involve different reasoning, but are nonetheless valid. Two illustrations will suffice.

Observation of military materiel, and experience with its production, confirms the self-evident fact that there will always be some species of military equipment yet to be developed. But the fact that items of that general type will be required in some specific form can be known. For example, no one perhaps can now predict with assurance just what exact form the various guided missiles will ultimately take. But they, whatever their forms, ultimately, will need some kind of arming devices and some time-measuring means. The jeweled-watch industry has in practice been a principal source for these kinds of things.

Secondly, much attention is given the thought that our present rapidly evolving technology in the United States makes it impossible to know exactly what will be required in a future emergency. Therefore, it is argued, how can it be known what industrial capacity is essential? What a defeatist attitude that is.

Whatever the particular form of the military end items of the future may be, it is obvious that they must operate in the framework of known factors such as time and space relationships. The means selected to control them in these twin relationships must necessarily be (1) precise, (2) dependable, and (3) available in quantity. Since the central trend in our emerging technology is in miniaturized control devices, it can be reasonably concluded that the design, engineering, tooling, and production skills of the jeweled-watch industry will be required to help solve these problems and supply some part of the components.

CHARACTERISTICS OF THE ESSENTIALITY OF THE DOMESTIC JEWELLED-WATCH INDUSTRY

The scope of our competence in this field of control of time and space relationships stems directly from the experience, skills, and capacity we have developed in decades of jeweled-watch manufacture.

This competence in terms of its essentiality to national defense consists in the special ability of our organizations to design, engineer, tool, and mass-produce miniature and subminiature complex mechanisms made to extremely close tolerances. Not the ability to do any one of these things, but rather the combination of all these abilities is the source of our importance to national defense.

The fundamental characteristics of this highly adaptable design, engineering, and production art are: (1) quality production in large volume, (2) miniaturization, (3) precision.

With our unique manufacturing abilities we can quickly and with a high degree of reliability perform work which is too intricate for other manufacturers whose normal operations do not involve, as ours do, highly precise mass-production operations to microscopic tolerances and sizes.

A little reflection on the problems involved in watch manufacture will show why this is so.

To begin with, the efficient mass production of the multitude of very small precision parts which go into a watch movement requires complete engineering, tooling, and laboratory facilities. Because it is not profitable for tool and die makers and machinery manufacturers outside our industry to produce for such a limited market, the watch-making industry has had to build and design most of its own intricate machines and tools. This develops the ability in our engineering departments and machine shops to build machines, dies, and tools for any type of precision mass production manufacturing requiring miniaturization or subminiaturization.

I would like to lay before you a few exhibits.

Here are some plastic spares of miscellaneous watch parts, which may interest you. Will you pass those along, please?

Perhaps these loubes would also be helpful to the members of the committee. The tiny coiled spring which you see there is the hair spring of a lady's wristwatch and is made from this wire. I wonder if you would distribute those for me also, please.

I think it would be helpful in looking at that wire if you will lay it down on a piece of light paper so there is a background against which it can show.

This wire is forty-one ten-thousandths of an inch wide by eighty-three one-hundred-thousandths thick, and its accuracy in thickness has to be held to plus or minus two one-hundred-thousandths. Five strands of this wire stacked together equal about the thickness of a human hair. Special machines, dies, and techniques are required for the production of this material, and its fabrication into the coiled spring.

Illustrative of a different art is this pillar plate, also for a lady's watch, and I have some of those here which I would appreciate your distributing. Plate processing involves the use of a variety of presses and such machines as multiple-spindle automatic drills, semi-automatic facing machines, and vertical and horizontal profiling machines. Note the multiplicity of holes in these pillar plates. I think in this particular one there are 38 of them and 3 odd-shaped openings. Note also the various levels or floors of the recesses in this plate. The smallest hole is one hundred and sixty-two ten-thousandths of an inch in diameter. Several of the holes are threaded to 220 threads to the inch.

The hole locations have to be accurate to within plus or minus three ten-thousandths of an inch.

Another type of production operation which may be of interest is illustrated in the screws you will find in this little capsule. Would you distribute those capsules for me?

There is one nice thing about our industry and that is that these exhibits never become burdensome.

Representative BOLLING. You don't have a storage problem.

Mr. MOTE. We have no storage problem, no.

Those little screws are done on automatic screw machines, of course, in a continuous operation which completes one screw; that is, puts a head on it, puts the slot in it, puts the threads on it, and the point, every 8 seconds. I mention this to underscore the point that it is a combination of mass production of these very tiny things, to very close tolerances, to which we attach so much significance.

The length of this particular screw in that little capsule is thirty-one one-thousandths of an inch. It has 6 perfect threads on it, approximately 360 to the inch, and 60,000 of them weigh but an ounce.

It is accurate in dimensions—that tiny screw is accurate in dimensions to one ten-thousandth of an inch, and in weight to one one-millionth of an ounce.

We have to make our own dies and our own small tools, such as taps, gages, and threading dies, and, of course, the machines and tools must be as accurately and precisely made as the tolerances they are required to hold on the parts they produce.

INSPECTION FACILITIES ARE EQUALLY PRECISE

Research and development is a major activity at our plants. Because of the multitude of materials used in a watch—over 700 different sizes of material and over 140 different metallic alloys are used—and the basic nature of the watch as the world's smallest yet most dependable constant rate engine, research related to horology includes about every field of physical science—physics, chemistry, electrochemistry, lubricants, plastics, metallurgy, optics, and electronics.

These developmental skills have the greatest possible significance for the Armed Forces. For example, at the base of a highly classified proximity fuze used by one of the armed services is a small, complex, electromechanical fitting, manufactured by one of the domestic watch companies. This intricate safety and arming device is no larger in volume than a golf ball, yet it contains nearly 100 miniaturized parts.

Even smaller is a new rocket fuze developed by one of our companies which for security reasons can only be described as about the size of an ordinary thimble. These fuzes require precision manufacture and operation of the kind to which the jeweled-watch companies are accustomed, yet other industries would find the requirements far beyond their command, within reasonable times.

In the delicate mechanism of a lady's jeweled watch, approximately 150 miniaturized parts are fitted together into a space which is less than 3 dimes stacked together. Reflect on this a moment and you will appreciate why it is principally to our industry that the military turns for these small, highly complex items. I think it is also fair to say that, in the instance of items produced by the watch industry and others, it has been the watch companies who have either pioneered the production, made the significant improvements, or was called on to do the developmental work.

To be sure, the technology for war is changing, and the changes affect armament, projectiles, and missiles. But the significant fact is that the answer to certain highly critical military problems involving aircraft, guided missiles, and mobile communications equipment lies in electromechanical control devices that are simpler, more reliable, and more readily miniaturized than straight electronic controls.

Among the items being supplied by our industry in this changing technology of war is a device for the self-destruction of anti-aircraft projectiles, and a small versatile anti-aircraft fuze which operates with equal effectiveness when fired from a variety of anti-aircraft guns.

Many types of electromechanical interval timers have been designed and produced by one of the domestic watch companies. One of them is used in high-altitude rockets. It is a precision miniaturized puls-

ing device that provides an accurate time base for motion pictures being taken automatically of the rocket instruments. A tiny relay weighing only 0.035 of an ounce is now in production for use in the computer systems of guided missiles which depend on relays to transmit signals to an electronic brain.

The competence of a watch company in the electromechanical field is also shown by precision automatic production equipment for the manufacture of tiny jewel bearings. For example, one of these machines, designed and made by a watch company, is electronically controlled and grinds circular jewels to precise outside diameter and shape. It is one of a prototype production line of 26 machines designed and built by the watch company's engineers automatically to drill, open, cup, grind, and polish jewels in mass-production quantities.

I have here a couple of examples of the adaptation of watch skills to these other fields of the significance to the newer technology of war and how the routine research and development work of the industry often paces military requirements.

The first is this tiny relay—and would you pass those around, please—which we have developed since beginning our diversification into the electronics field and which was manufactured successfully only after watch manufacturing techniques were applied to its production. If you remove the cap, just pull that little cap off—it should come off fairly easily—you will find a tiny coil wound with 6,300 turns of wire having a diameter of ten ten-thousandths of an inch. Learning how to wind the coil for the electronic watch research which we have been doing made this an easy transition for us from the previous larger size that had been produced before we got into that business, which was about three-quarters of an inch square.

So, doing this was very simple.

Here is a sample coil for one of the electronics watches under research in our company. It is wound with 2,800—it is the coil I referred to a moment ago—it is wound with 2,800 turns of twelve ten-thousandths diameter wire. The development of this watch has called for the solution of problems in microelectronics not previously explored by any other industry.

I could regale you with many other exhibits along these same lines. Special oils developed for horological use have found important defense applications, as have special alloys developed in routine watch research. Now we are being called upon as has been testified to here this morning, to do an increasing amount of military research and development.

Within the laboratory of a single company there is gathered development work for the armed services in the spheres of artillery fuzes, guided missiles, sensing, arming and control devices, miniaturized electromechanical devices, advanced electronic systems, automatic production of quartz crystals, reconnaissance and gun cameras, terminal ballistics and advanced missile systems.

The problem of manufacturing quality in precision miniaturized components is the sum of many things—the critical machines, the tool-building facilities, the inspection equipment, and most of all it resides in the skills of the engineers, the machine tool builders, the supervisors and the technical people who know how to use them properly and to train others in the art of precision. For our many years of experience with the tiny parts involved in watch manufacture has

taught us that miniaturization is not always just a matter of making things smaller.

The maintenance of the technical and supervisory personnel in our domestic watch companies at their high level of skills for the continued production of jeweled watch movements provides constant insurance that the persons who manufacture, inspect, and assemble movements at our domestic plants are available to perform the most critical operations in the solution of military problems with skill, assurance, and speed.

I have not undertaken in this appearance to catalog for you the very large quantities of military timing devices produced for the Armed Forces during World War II and the Korean emergency. These data are summarized in exhibits I and II to my prepared statement. We in the domestic jeweled watch industry believe that some value should be attached to the lessons of the past, but we do not place exclusive nor even major reliance on our record of service and support to the Armed Forces in past emergency periods. We think it more pertinent to call your attention to the essential characteristics of our manufacturing operations and capacities. For that reason I have devoted almost my entire attention to assist you to understand the potential capacity which resides in our companies so long as we are going concerns engaged in a major way in the production of jeweled watches—and the essentiality criteria which such circumstances might suggest to you.

Thank you very much.

Representative BOLLING. Thank you very much, Mr. Mote.
(Mr. Mote's full statement and attachments follow:)

STATEMENT OF LeROY A. MOTE, SECRETARY AND COUNSEL, ELGIN NATIONAL WATCH CO.

My name is LeRoy A. Mote. I am secretary and counsel of Elgin National Watch Co. I have been employed by Elgin since 1937. My legal duties have encompassed competitive problems arising out of customs laws and regulations, and my general responsibilities in connection with the patent work performed by outside counsel have kept me abreast of technical developments.

I am appearing for Mr. James G. Shennan, our president, who only last Sunday suffered a recurrence of a sacroiliac ailment. He has asked me to express his regret at not being here and to summarize for you the following statement which he had planned to make:

From the press release, I note the topic for today is entitled "The Problems of the Watch Industry Related to Defense Essentiality and Foreign Economic Policy." I notice also the subcommittee states its primary concern is the establishment of criteria for determining defense essentiality. This was reaffirmed in the chairman's opening statement last Monday.

To the extent that what is essential about our industry may shed some light on how to measure defense essentiality generally, or suggest to you some criteria of general application, we are glad to describe for you those things which are unique about our industry, and to share with you some of our defense work experiences.

Of course I can speak only of the watch industry. The pattern of other essential industries may be quite different, and suggest quite different criteria. The views of other defense industries should, therefore, also be sought if the subcommittee's study is to be meaningful.

In commenting on our industry, however, we are not approaching the subject with the objective of demonstrating the essentiality of the industry. This committee would appear not to be functioning in that area, and in any event that question has already been settled by a multitude of governmental agencies whose responsibilities are in that field.

Others here today will discuss the industry's relationship to the problems of foreign economic policy. I shall confine my remarks to defense essentiality criteria.

DEFENSE ESSENTIALITY OF WATCH INDUSTRY WELL ESTABLISHED

The defense essentiality of the domestic jeweled-watch industry has been studied frequently, exhaustively, and recently. All of these have ended by affirming the almost self-evident fact of essentiality.

At this point I would like to insert in the record a partial list of such studies, reports, and letters (including excerpts taken from them) occurring between the years 1944 and 1955, all of which resulted in findings of essentiality. This list of more than 30 items contains eloquent testimony of the industry's importance to national defense, and includes many letters from Navy and Army personnel as well as reports of the National Security Resources Board during the Truman administration and the Office of Defense Mobilization during the present administration. I wish there were time to read it to you.

GENERAL CRITERIA OF ESSENTIALITY

Something about the jeweled-watch industry has led all of these people and groups to the same conclusion. I don't know the exact criteria they may have used, but I believe I can suggest valid criteria based upon the operations and experience of the industry.

1. Since the Defense Production Act of 1950 has directed the use of incentives to create new capacity required for national defense, it is obvious that if new capacity has been created pursuant thereto that capacity is essential. The domestic industry has created over \$10 million of new capacity under such incentives during the present emergency.

2. If the armed services identify a mobilization need for specific products and give a domestic producer an M-day assignment for its production in an existing plant, that plant's capacity for meeting the M-day assignment is essential to national defense, particularly if its facilities or capacity for such production are unique in American industry or substantially superior to those of others. (See attachment II.) The domestic jeweled-watch industry has some 70 M-day orders from the military totaling well over half a billion dollars. This figure, of course, does not include the tremendous volume of defense work which, based on World War II and Korean experience, we will be called upon to do as subcontractors, or other items not now contemplated.

3. If an industry regularly performs basic research and development work for the armed services and there is a direct relation between its capacity to perform such research and development and a profitable base of production activity, its continued existence on a level adequate to sustain the research and development capacity is essential to national defense. The domestic watch industry presently is working on research and development contracts of an aggregate value of \$11,735,000 for whose performance we are directly dependent on the research laboratories which derive their long-term support from our watchmaking operations.

4. If an industry is the only producing source for a military end item, defense supporting item, or essential civilian item; or, if it is the only source capable of producing such an item in any realistic period of time upon the occurrence of an emergency it is essential to national defense. The domestic watch industry is in this position with respect to jeweled lever timing devices.

5. Even though there be other industries which could in time be upskilled to do the same work, if a particular industry is regularly producing an item of military, defense supporting or essential civilian importance, and it has no other mobilization assignments which would preclude its production of the item in an emergency, it rather than the industry which would need to be upskilled is essential to national defense. Any other conclusion would impair the paramount objective of attaining the Nation's maximum production potential in the least possible time in a period of emergency when total capacity is never enough to satisfy all demands. This is the situation of the domestic watch industry with respect to production of fuses and parts.

These general criteria all involve judgment on the grounds of experience. Added tests of essentiality involve different reasoning, but are none the less valid.

Observation of military materiel, and experience with its production, confirms the self-evident fact that there will always be some species of military equipment yet to be developed. But the fact that items of that general type will be required in some specific form can be known. For example, no one perhaps can now predict with assurance just what exact form the various guided missiles will ultimately take. But they, whatever their forms, will need some kind of arming devices and some time measuring means. The jeweled-watch industry has in practice been a principal source for these kinds of things. It is reasonable to conclude therefore that the industry's capacity to design, engineer and mass produce ruggedized miniature, precision mechanical, or electromechanical means for performing these functions in missiles will be needed. Since missiles have a most important status as military end items for the foreseeable future, the jeweled-watch industry will continue to be essential, among other reasons, for that task.

Much attention is given the thought that our present rapidly evolving technology in the United States makes it impossible to know exactly what will be required in a future emergency. Therefore, it is argued, how can it be known what industrial capacity is essential? What a defeatist attitude that is.

Whatever the particular form of the military end items of the future may be, it is obvious that they must operate in the framework of known factors such as time and space relationships. The means selected to control them in these twin relationships must necessarily be (1) precise, (2) dependable, and (3) available in quantity. Since the central trend in our emerging technology is in miniaturized control devices, it can be reasonably concluded that the design, engineering, tooling, and production skills of the jeweled-watch industry will be required to solve the problems and supply some part of the components. For of all industry, control of time and space relationships through miniaturized mechanical or electromechanical means is our special and in some cases virtually exclusive field of competence.

CHARACTERISTICS OF THE ESSENTIALITY OF THE DOMESTIC JEWEL-WATCH INDUSTRY

The scope of our competence in this field of control of time and space relationships stems directly from the experience, skills, and capacity we have developed in decades of jeweled watch manufacture.

This competence in terms of its essentiality to national defense consists in the special ability of our organizations to design, engineer, tool, and mass produce miniature and subminiature complex mechanisms made to extremely close tolerances. Not the ability to do any one of these things to the exclusion of others, but rather the combination of all these abilities is the source of our importance to national defense.

The fundamental characteristics of this highly adaptable design, engineering, and production art are: (1) quality production in large volume, (2) miniaturization, (3) precision. It is precisely these characteristics which the Armed Services have always sought from our industry.

With our unique manufacturing abilities we can quickly and with a high degree of reliability perform work which is too intricate for other manufacturers whose normal operations do not involve, as ours do, highly precise mass production operations to microscopic tolerances and sizes.

A little reflection on the problems involved in watch manufacture will show why this is so.

To begin with, the efficient mass production of the multitude of very small precision parts which go into a watch movement requires complete engineering, tooling, and laboratory facilities. For example, because it is not profitable for tool and diemakers and machinery manufacturers outside our industry to produce for such a limited market, the watchmaking industry has had to build and design most of its own intricate machines and tools. This develops the ability in our engineering departments and machine shops to build machines, dies, and tools for any type of precision mass production manufacturing requiring miniaturization or subminiaturization. The only other source for this machinery is Switzerland. We are unable to secure the latest Swiss specialized watchmaking machinery, however, because the Swiss watch cartel prohibits its exportation except under restrictive agreements which violate United States anti-trust laws.

Further examples: We manufacture plates for watches and other instruments using 5 varieties of presses and such machines as multiple spindle automatic

drills; semiautomatic facing machines, vertical and horizontal profiling machines. The watch movement pillar plate is an example of this class of work. It is a multiple-hole, recessed precision plate with irregular contours whose hole locations are held to a tolerance of 0.0003 inch, and jewel hole diameters to a total tolerance of 0.0001 inch.

We make microscopically small pinions and arbors on automatic machines to diameter tolerances of 0.0001 inch.

On automatic screw machines we make tiny screws and other threaded parts in a one-cycle operation to outside diameters of 0.012 to 0.040 inch and threads ranging from 30 to 340 to the inch. Possibly our smallest screw turned out on these machines is 0.026 inch long. It weighs only thirteen one-millionths of an ounce.

We have complete facilities for making high-grade stainless or carbon steels and drawing them into springs. Our plants have their own induction melting furnaces, forging equipment, billet and strip heaters, hot and cold rolling mills, shot blaster and swaging machines.

Our companies have about the only facilities in America for precision rolling flat strip to 0.00078 inch to tolerances of ± 0.0001 inch.

We have specially constructed diamond dies and rolling machines which permit flat wire to be drawn so as to secure a mirror finish and tolerance control to within 0.00001 inch on a mass-production basis.

These facilities are indispensable to the manufacture of hairsprings not only for watches but military fuzes and other military timing devices.

You can get some idea of the dimensions we are working with on a mass-production basis when I tell you that the wire used in making a hairspring for a lady's watch is about 0.004 inch wide and 0.00083 inch thick. Five strands of this wire stacked together about equal the thickness of a human hair.

To move along in our manufacturing cycle, our plants have facilities for flat grinding hardened steel parts to tolerances of 0.0002 inch for flatness and parallelism. Precision drilling and tapping of these parts is done to diameters as small as 0.005 inch for drilling, and 0.010 inch pitch diameter for tapping.

Other precision operations involved in making watch parts are compound counterboring, and swaging integral pins, accurately sized for length, diameter, and location on the part.

In making our own dies we use jig bores which can keep tolerances on hole diameters and locations to 0.0001 inch. Typical of the precision dies we make for ourselves is a multiple punch compound shaving die the holes in which are accurate in diameter to 0.0001 inch and in location to 0.0002 inch.

We make our own segmented irregular contour dies. These are ground for profile on pantograph grinders to tolerances within 0.0002 inch on any dimension. Our profiling machines, which we also build, cut irregular contours automatically on six different levels without requiring removal of the part.

We must also make our own small tools such as taps, gages, and threading dies. The precision required here is well illustrated by the process followed in making a small master tap to 0.0001 inch tolerance. First it is necessary to make an accurately threaded plug gage by chasing the threads with a single lip tool. This operation is done semiautomatically on microscope-equipped machines. Basic threaded plug gages used in our plants range from 0.013 to 0.040 inch outside diameter with a tolerance of 0.0001 inch, and from 80 to 340 threads to the inch. Another example of our versatility in tool manufacture is punches which are no greater than the diameter of a human hair yet must punch holes in metal. Drills have been made as fine as 0.002 inch in diameter that are accurate to 0.00003 inch. The industry, in short, has the skilled personnel and precision equipment to design and build any machines and tools required to undertake any project in miniaturization of complex assemblies.

We use controlled atmosphere heat treating to secure uniformly treated parts which are ready for further processing as soon as they come from the furnace. We electroplate on a production basis our bridges, plates, screws, and other small precision parts with rhodium, copper, nickel, chromium, silver, palladium, or gold.

We necessarily have elaborate inspection facilities at our plants. Tolerances of small precision parts can be assured only through the use of dependable and accurate gages and measuring devices. Our standing measuring machines have an accuracy to 0.00001 inch. We have made our own contour projection machines for the inspection of small irregularly shaped parts. They have a magnificent range of 100 times at an accuracy of 0.0001 inch at that limit. Co-

ordinate measuring machines determine the relative location of holes in small parts with an accuracy to 0.00005 inch.

Research and development is a major activity at our plants. Because of the multitude of materials used in a watch—over 700 different sizes of material and over 140 different metallic alloys are used—and the basic nature of the watch as the world's smallest yet most dependable constant rate engine, research related to horology includes above every field of physical science—physics, chemistry, electrochemistry, lubricants, plastics, metallurgy, optics, and electronics.

These developmental skills have the greatest possible significance for the Armed Forces. For example, at the base of a highly classified proximity fuze used by one of the armed services is a small, complex, electromechanical fitting, manufactured by one of the domestic watch companies. This intricate safety and arming device is no larger in volume than a golf ball, yet it contains nearly 100 miniaturized parts.

Even smaller is a new rocket fuze developed by one of our companies which for security reasons can only be described as about the size of an ordinary thimble. These fuzes require precision manufacture and operation of the kind to which the jeweled watch companies are accustomed, yet other industries would find the requirements far beyond their command, within reasonable times.

In the delicate mechanism of a lady's jeweled watch, approximately 150 miniaturized parts are fitted together into a space which is less than 3 dimes stacked together. Reflect on this a moment and you will appreciate why it is principally to our industry that the military turns for these small highly complex items. I think it is also fair to say that, in the instance of items produced by the watch industry and others, it has been the watch companies who have either pioneered the production, made the significant improvements, or was called on to do the developmental work.

To be sure, the technology for war is changing, and the changes affect armament, projectiles, and missiles. But the significant fact is that the answer to certain highly critical military problems involving aircraft, guided missiles, and mobile communications equipment lies in electromechanical control devices that are simpler, more reliable, and more readily miniaturized than straight electronic controls. Certain subminiature relays made by one of our companies are in this category. They are used in missiles and aircraft because they cover a broad range of electrical characteristics and more than meet the environmental standards of vibration, shock, and temperature given in military specifications.

Among the items being supplied by our industry in this changing technology of war is a device for the self-destruction of antiaircraft projectiles, and a small versatile antiaircraft fuze which operates with equal effectiveness when fired from a variety of antiaircraft guns.

Many types of electromechanical interval timers have been designed and produced by one of the domestic watch companies. One of them is used in high-altitude rockets. It is a precision miniaturized pulsing device that provides an accurate time base for motion pictures being taken automatically of the rocket instruments. A tiny relay weighing only 0.035 ounce is now in production for use in the computer systems of guided missiles which depend on relays to transmit signals to an electronic brain.

The competence of a watch company in the electromechanical field is also shown by precision automatic production equipment for the manufacture of tiny jewel bearings. For example, one of these machines, designed and made by a watch company, is electronically controlled and grinds circular jewels to precise outside diameter and shape. It is one of a prototype production line of 26 machines designed and built by the watch company's engineers automatically to drill, open, cup, grind, and polish jewels in mass-production quantities.

The development of the electronic watch called for the solution of problems in microelectronics not previously explored by any industry. The solution of these problems resulted in a watch powered by a tiny battery with a motor that develops only one seventy-five millionth of a horsepower. The precision skills of watch manufacturing proved essential in building such components as subminiature coils only one thirty-second inch long wound with 3,000 turns of insulated copper wire 0.0005 inch in diameter.

Our research scientists are busy with the development of semiconductor devices for miniaturized electronic equipment not available to the armed services through other sources. Low power, subminiaturized diodes and transistors with special characteristics are now being developed by the industry through its facilities for germanium reduction, purification, crystal growing, and fabrication.

The industry has developed specialized techniques which can be used effectively to solve hitherto unsolved problems involving miniature circuitry, capacitors, resistors, and oscillators.

One of our new mainspring alloys, through its resistance to corrosion, fatigue, set, and temperature change along with its high tensile strength and toughness, has proved to be the only material suitable for the drive band controlling the motion of an electronic aviation device.

A completely synthetic lubricant recently developed by one of our companies to meet the specific needs of timepieces also has a wide application in military articles such as cameras, fuses, meteorological and navigational instruments. The increasing scope of our Arctic operations requires a lubricant which will permit the normal functioning of military devices with moving parts at Arctic temperatures. This new lubricant makes possible the normal functioning of jeweled watches and the other devices mentioned at temperatures as low as -115° F., or as high as 160° F.

As a result of these characteristics, the military research and development work of the domestic industry is currently increasing, particularly in the field of guided missiles. One of the four domestic companies has recently established a branch laboratory in Burbank, Calif., in order to work closely with the leading aircraft and missile centers in that area. Contracts are increasing for the development and production of safety and arming devices for air-to-air rockets, air-to-air missiles, surface-to-air missiles, and surface-to-air rockets.

The research technicians of a domestic watch company are engaged in the development of a memory chronograph to consolidate into one instrument for jet aircraft the three timing devices which are now used in jets. Another company's research laboratory is producing prototype cameras and special equipment for aerial reconnaissance. Within the laboratory of a single company there is gathered development work for the armed services in the fields of artillery fuzes, guided missile sensing, arming and control devices, miniaturized electromechanical devices, advanced electronic systems, automatic production of quartz crystals, reconnaissance and gun cameras, terminal ballistics, and advanced missile systems.

These examples of current technological contributions of the watch industry show that the problem of manufacturing quality in precision miniaturized components is the sum of many things—the critical machines, the toolbuilding facilities, the inspection equipment. Most of all, it resides in the skills of the engineers, the machine and tool builders, the supervisors and the technical people who know how to use them properly and to train others in the art of precision. For our many years of experience with the tiny parts involved in watch manufacture has taught us that miniaturization is not always just a matter of making things smaller.

The maintenance of the technical and supervisory personnel of our domestic watch companies at their high level of skills through the continued production of jeweled watch movements provides constant insurance that the persons who manufacture, inspect, and assemble movements at our domestic plants are available to perform the most critical operations in the solution of military problems with skill, assurance, and speed.

I have not undertaken in this appearance to catalog for you the very large quantities of military timing devices produced for the Armed Forces during World War II and the Korean emergency. These data are summarized in exhibits I and II to my prepared statement. We in the domestic jeweled watch industry believe that some value should be attached to the lessons of the past, but we do not place exclusive nor even major reliance on our record of service and support to the Armed Forces in past emergency periods. We think it more pertinent to call your attention to the essential characteristics of our manufacturing operations and capacities. For that reason I have devoted almost my entire attention to assist you to understand the potential capacity which resides in our companies so long as we are going concerns engaged in a major way in the production of jeweled watches.

The illustrations which I have offered you of the manner in which the essential capacity of our industry is at work serving the Defense Establishment in the solution of existing problems and the development of weapons of the future are by no means a complete enumeration. Most of the projects which were brought to our industry by the Defense Department because of our ability quickly to design, engineer, tool, and mass-produce miniaturized precision complex assemblies are highly classified and they may not be mentioned in a public hearing.

CONCLUSION

The whole matter of determining whether or not our industry or any other industry is essential to the national defense and therefore deserving of the positive support of Government policy is a matter of Government responsibility.

Whether or not there should be any hesitancy about the loyal and whole-hearted application of effective measures to protect essential industries because of anticipated repercussions from foreign countries is also a matter of Government responsibility. In our opinion, there should be no difficulty with the proper answer.

Other material which has been or will be submitted to the committee by or under the sponsorship of the domestic industry indicates conclusively that the scale of actions which are required to insure the preservation of an essential defense industry such as the watch industry could not conceivably have any significant effects on the economies of our allies nor upon prosperity or sales volume of our export industries. The evidence on this point is so clear that we cannot visualize any responsible decision being made detrimental to the preservation of this or any other essential industries because of anticipated, highly speculative consequences abroad of such action.

ATTACHMENT I

HOW FIRMS ARE REGISTERED AS PLANNED WARTIME PRODUCERS

The production allocation program is the principal method by which the Army, Navy, and Air Force plan with American industry for the production of military items in event of a war emergency. Firms who are participating in this program are listed in the Register of Planned Mobilization Producers, commonly called the register. This planning program is a realistic and practical system of planning since it deals in facts rather than well-meaning generalizations. For example, a particular military customer is cross-referenced to a specific manufacturer with whom tentative production schedules are then jointly developed for the production in wartime of a definite military item.

It is necessary for the Army, Navy, and Air Force to be very selective in determining which military items justify the voluntary planning effort involved on the part of industrial executives. Every effort is made to concentrate planning efforts on the most essential hard-to-make, hard-to-get items with complex wartime procurement problems. This means that a great many items that the military departments intend to buy in wartime will not be planned in advance since they present no production problems.

When a manufacturer becomes a planned supplier by working out a tentative mobilization production schedule with a military procuring office, the firm's name is automatically listed in the Register of Planned Mobilization Producers.

Usually, a military planning office needing potential capacity for wartime production of military items solicits the participation of a manufacturer to become a planned producer. Often, however, the military planners are unable to locate satisfactory sources or sufficient sources. It is under this circumstance that an unsolicited offer from industrial management is most welcome. Requests from industry, to become planned producers, are screened against the list of items for which planning is intended but for which sufficient production sources have not been located. When these match up, planning starts promptly. When they don't match up, the industry offer is placed in the military agency's source files for later use in finding a "home" for other items which may be added to the planning lists in the future.

Considering the foregoing explanation, a firm which would like to participate in the program should do three things:

First: It should determine if it has the potential to produce significant quantities of a hard-to-get, hard-to-make military item. The military planning offices select the specific items to be planned by means of the following criteria:

1. The item must be necessary for—
 - (a) Survival and retaliation;
 - (b) Maintenance of health;
 - (c) Combat efficiency.

2. In addition the military item must involve a production problem, such as the long lead times or special production training and tooling which would be benefited by advance planning.

Second: If a manufacturer can make items meeting these criteria, he should determine the particular military commands which have planning responsibility

for the essential military items he could produce. (Not everybody in the military buys everything. Just as in industry, different military offices specialize in buying and planning for different commodities.) If a company has previously produced for the military, it should start by contacting its previous military customers.

A firm that doesn't know which military offices to contact can get help by purchasing a pamphlet called "United States Government Purchasing Directory" from the Superintendent of Documents, United States Government Printing Office, Washington, 25, D. C. This helpful booklet which costs 50 cents, tells which Government offices buy what items. In general the military office which buys an item also plans for it.

Third: Knowing what it can produce and who buys it, a company should then bring to the attention of the appropriate military offices its ability to produce the specific things which that military office buys. This is a selling job. It is up to the firm wishing to participate to demonstrate its wartime production potential to the point where a military planning office decides to register the firm as a potential wartime producer.

When contacting a military command, a manufacturer should state succinctly the kinds of military equipment or war materiel he thinks his company can make, describe the kinds of tooling and production equipment it has and give some facts regarding his firm's know-how and the kind of work it has successfully done.

Whether a firm is large or small is irrelevant. Firms of all sizes make up the fabric of America's industrial preparedness. The important factors are, "Do you have the "know-how" and production potential to make a hard-to-get military item?—and are you willing to do the work necessary to plan an intelligent wartime use of your plant?"

(Office, Assistant Secretary of Defense (Supply and Logistics), Planning Branch, The Pentagon, Washington, D. C.)

PARTIAL COLLECTION OF STATEMENTS MADE CONCERNING DEFENSE ESSENTIALITY OF WATCH INDUSTRY

1. November 8, 1944, Rear Adm. G. F. Hussey, Jr., Chief of the Bureau of Ordnance, Navy Department (in letter to C. M. Kendig, then president of the Hamilton Watch Co.):

"It is freely acknowledged that the contribution of the several companies forming the American Jeweled Watch Association to the war effort has been concrete and substantial. In the field of the mechanical time fuze alone, there is no question but that more progress has been made since the introduction of the associated companies into the engineering and production picture than had been made in any corresponding previous period. There is definite ground for the belief, in fact, that the present highly satisfactory status of these fuzes would not have been achieved without the technical skill of these companies.

"In view of the above it seems logical in the extreme that the American jeweled-watch industry should be kept alive, if for no other reason, as a protection to the Armed Forces in the event of future world conflict."

2. December 23, 1944, Rear Adm. E. L. Cochrane, Chief of the Bureau of Ships (in letter to C. M. Kendig):

"On the assumption that in the post-war period the United States will undertake to maintain a strong naval arm and an adequate merchant fleet, it appears highly desirable to keep available for the future needs of the Navy and the merchant marine the sources of production of precision horological instruments which have been developed during the War."

3. February 23, 1945, Lt. Col. R. R. Winters of the Aircraft Section, Supply Division, Army Air Forces (in letter to the War Production Board):

"Accurate watches are vital to operations of the AAF. Any shortage of watch production resulting in the Air Forces' receiving fewer watches than required would seriously affect long-range air operations."

4. November 14, 1945, Lt. Gen. L. H. Campbell, Jr., Chief of Ordnance, War Department (in letter to C. M. Kendig):

"The Ordnance Department is interested in conserving this potential production asset as contained in the watch-and-clock industry of the country. I have had conversation with other watchmakers on this same subject and can only hope that something may be done."

5. December 5, 1945, Brig. Gen. A. K. Crawford, Acting Assistant Chief of Air Staff, Army Air Forces (in letter to Mr. Kendig) :

"The important part played by the domestic watch industry in the production of instruments of many types required by the Army Air Forces as well as for other military materiel during the recent war is thoroughly appreciated by the Army Air Forces, and you may feel assured that recommendations have already been made to the Office of the Under Secretary of War that appropriate steps be taken to assure the maintenance of a sound jeweled and nonjeweled watch-and-clock industry in the United States for the purposes of national defense."

6. January 7, 1946, James F. Byrnes, wartime Director of War Mobilization :
 "During the war the United States watch-manufacturing industry was almost completely engaged in production of timepieces and precision instruments for the Armed Forces. The War and Navy Departments state that the United States could not successfully have fought the war without these instruments, and further, that their production requires special skill which cannot be found in any other domestic industry. They state that the preservation of these skills is essential to our national security."

7. 1947, United States Tariff Commission (War Changes in Industry Series, Rept. No. 20, Watches, p. 123) :

"Except for the existence of established manufacturers of jeweled watches of quality, the Army and Navy could not have procured precision time instruments of the high quality, and in the large quantities and in the limited time in which they did. In any future national emergency, the Army and Navy would again almost certainly be dependent on such manufacturers. The continued existence of facilities such as these manufacturers possess may therefore be regarded as essential to maintenance of national security."

8. February 15, 1950, "LaLutte Syndicale," official organ of the Swiss Federation of Machinists and Watchmakers (before the essentiality question had assumed its present importance) :

"It makes sense to say that a drop in the price of Swiss watches on the American market would increase the difficulties of American manufacturers. To combat the threat of a crumbling of this industry, *indispensable to national defense*, the Government of the United States may be tempted not to subsidize the domestic industry, although this has been requested by certain politicians, but rather to limit the entry of Swiss watches or to increase customs duties." [Italics added.]

9. March 17, 1950, Hubert Howard, Chairman of the Munitions Board (in letter to Senator Scott Lucas) :

"In any appraisal concerning the adequacy of this industry, we have recognized that the industry is unique, in that its position does not follow the accustomed American industrial pattern where the major portion of the demand of the domestic market is met with goods of American manufacture. Quite the opposite is true in the case of the American jeweled-watch industry where approximately 70 percent of the jeweled watches sold domestically contain complete Swiss movements.

"This creates a situation where the domestic industry gears its normal full-time production goal to an approximate one-third segment of the total American jeweled-watch market. Continued maintenance of those portions of their business important to national security, such as engineering skills, designers, etc., is dependent on sales to that one-third segment. Any appreciable shrinkage in this sales volume would further curtail this nucleus of productive capacity on which we would largely depend for expansion in wartime.

"Assuming that we will have to rely exclusively on our domestic capacity to produce timepieces and related items in a future emergency, and based on an analysis of our experiences in the last war, I believe that the preservation of a minimum level of domestic productive capacity is absolutely essential."

10. May 9, 1950, Hubert Howard, Chairman of the Munitions Board (in a second letter to Senator Lucas) :

"As I pointed out in my prior letter, the maintenance of a healthy watch industry is essential to the national security. In addition to the items which it alone can produce, the industry undoubtedly would again be called upon for the production of other items for which it is not the sole producer. In view of this, it is our feeling that, as a matter of precaution against probable future needs, every effort should be made to prevent the dissipation of the productive capacity of the industry and to maintain it in a healthy condition."

11. July 1951 (before the essentiality question had assumed its present importance), the American Watch Association, Inc., the importers' trade associa-

tion (in its brief filed with the United States Tariff Commission during the first escape-clause investigation of watch imports, p. 73) :

"No one familiar with the facts will seriously question that an adequate jeweled-watch industry is important to the national defense potential."

12. June 14, 1952, the United States Tariff Commission (in its Report to the President on Escape-Clause Investigation No. 26, pp. 19-20) :

"The forces now dominant in the watch trade are such that, if present tariff rates are not increased as recommended by the Tariff Commission, domestic watch manufacturers will undoubtedly find themselves able to supply only a constantly declining share of the domestic watch market, and will be obliged to reduce their aggregate absolute output of watch movements. Participation in the production of war materials has tended to obscure the serious deterioration that has already occurred in the domestic industries. Such production of war materials offers only precarious, short-lived opportunities, and once these come to an end, domestic manufacturers must again depend entirely upon production of watches for the civilian market. The future well-being of the industries producing jeweled-lever watches and watch movements is, therefore, contingent upon their obtaining a larger share of this American market. In no other way can the facilities for making watches and perpetuating watchmaking skills in the United States be assured; and the maintenance of these is vital to the national defense."

13. January 8, 1953, the Chairman of the National Security Resources Board (in a report to John R. Steelman, Assistant to the President, on the findings of an interdepartmental committee appointed by the President, composed of representatives of the Departments of Defense, Labor, and Commerce, and headed by the chairman of the NSRB) :

"The study makes it clear that precision jeweled movements are essential to the security of the Nation in wartime. It was further determined by the committee that the products of the jeweled watch industry, namely jeweled clocks, jeweled watches, chronographs, and chronometers, have a very high essentiality rating and are uniquely produced by the firms in this branch of the watch and clock industry * * * Dissipation of the skills presently employed either by curtailment below a minimum production level of jeweled movements or by transfer to alternative activity not requiring the same order of skills clearly would not be in the interest of national security."

14. May 19, 1953 (still before the essentiality question had assumed its present importance), Millard E. Tydings, representing the American Watch Association, Inc. (testifying before the Committee on Ways and Means on the Trade Agreements Extension Act of 1953. Hearings, p. 1872) :

"We agree with all concerned that the jeweled watch industry is essential to the security of the Nation in wartime."

15. February 11, 1954, Lt. Gen. L. H. Campbell Jr., Chief of Ordnance during World War II (testifying before the Tariff Commission during the second escape-clause proceeding, transcript p. 358) :

* * * knowing the military policy of this country and also knowing, as I do, the money that you do not get for this business when the skies are clear, I would say, having the watch and clock industry as a going industry, equipped with the necessary plants, the necessary know-how, the trained people, it is of very, very great value to this country as a backlog and a safety for a rapid reaching of production in that particular item [time fuzes]."

16. March 19, 1954, Adm. M. F. Schoeffel, Chief of the Naval Bureau of Ordnance (in letter to the Chief of Naval Materiel) :

"While the jeweled-watch industry per se is not the only source of watch- and clock-type movements necessary to the national defense, it is nevertheless considered to be extremely essential in this field in view of its know-how and its ability to make certain essential parts required by the watch and clock industry in general. * * * It is this Bureau's opinion that insufficient capacity already exists in the watch and clock industry, including the jeweled-watch industry, to meet the national defense M-day requirements * * *"

"It is therefore recommended that representatives of the Office of Naval Materiel be fully apprised of this situation in order that higher authority may be in possession of all the facts as to the essentiality of the watch and clock industry, no small part of which is known as the jeweled-watch industry."

17. June 21, 1954, Roy T. Hurley, then chairman of the board and president of Curtiss-Wright Corp. and during World War II chairman of the Ordnance Mechanical Time Fuze Integrating Committee (in his statement submitted to Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services, hearings p. 16) :

"This experience, I believe, qualifies me and I do not hesitate to make the following statement: 'I do not believe we would have produced the required quantity of mechanical time fuzes if it were not for the American watch and clock manufacturers.

"There is no question that their skill and help will be required for national security if we again engage in a major war. Considering the weapons available today and the fact that war can take place anywhere in the world in a matter of hours, we must have a strong watch and clock manufacturing industry as an essential part of our industry-defense team. * * * In my judgment, preservation of the watch industry is essential in order to meet the requirements of any emergency which might develop in the future."

18. June 30, 1954, Interdepartmental Committee on the Jeweled Watch Industry, composed of representatives of the Departments of State, Treasury, Defense, Commerce, and Labor (in its unanimous Report to the Director of the Office of Defense Mobilization, p. 21) :

"Dissipation of the skills presently employed either by curtailment below a minimum production level of jeweled movements or by transfer to alternative activity not requiring the same order of skills would not be in the interest of national security" (p. 13). * * * *Past experience, known requirements and reasoned judgment all lead us to conclude that the skills of the jeweled-watch industry constitute an essential part of our defense mobilization base. These skills should be maintained at a level from which a quick and effective expansion of production can be made in the event of national emergency.*" [Emphasis in original.]

19. June 30, 1954, Arthur S. Flemming, Director of the Office of Defense Mobilization (testifying before Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services. Hearings, p. 34) :

"* * * I would like to address myself first of all to the question: 'Is the preservation of the skills of the American jeweled-watch industry essential to the national security?'

"My answer to that question is unqualifiedly 'Yes.' There is no doubt in my mind on the basis of the evidence that I have had the opportunity of considering and on the basis of my own experience that the question should and must be answered in the affirmative."

In his prepared statement submitted to the subcommittee, Dr. Flemming said (p. 34) :

"The experience of World War II clearly demonstrated that there are many and varied military and essential civilian products for which the jeweled-watch industry is either the sole supplier or a highly qualified segment of the supply base.

"The statistical estimates of end item requirements from the industry indicate that very substantial demands would be made on the industry in the event of full mobilization. Even so, these estimates must be augmented by intelligent appraisal of the variable factors which may emerge as highly important and by our experience in the last war. These and a prudent concern for maintaining a reasonable safety factor in matters of national security suggest that the facilities and skills of the jeweled watch industry constitute an essential part of our defense mobilization base. These facilities and skills should be maintained at a level from which a quick and effective expansion of production can be made in the event of national emergency."

20. June 30, 1954, Thomas P. Pike, Assistant Secretary of Defense, Supply and Logistics (testifying before Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services, hearings, p. 40) :

"In general from the standpoint of the Department of Defense, and speaking strictly to the national security, the national defense angle of this problem, I can wholeheartedly concur in the general conclusion reached by Dr. Flemming in regard to the entire horological industry. And by that I mean not only the jeweled-watch industry but, in addition thereto, the nonjeweled-watch industry and the clockmaking industry.

"There is no question but that the skills involved in these several industries, constituting in its entirety what we call the horological industry, are vitally essential to our national defense in the event of mobilization."

In his prepared statement submitted to the subcommittee, Mr. Pike stated (p. 39) :

"Your notice for this hearing indicates that it is to cover the entire American watch industry, that is, the manufacturers of jeweled watches, nonjeweled watches, and I assume the entire horological industry. All of these manufac-

urers are valuable and essential to the Department of Defense. They produce such products as jeweled watches and movements, mechanical time fuzes and other special timing and precision devices requiring specialized engineering, small-parts production, and manual skills so traditionally identified with the horological industry throughout the world. These products represent the split-second timing required for the movement of troops, air groups, ships, and all forms of military equipment plus the highly essential mechanical time fuzes and rear-fitting devices which determine the arming and exploding of shells and rockets. The Armed Forces would be vitally handicapped without this equipment."

21. June 30, 1954, Lothair Teetor, Assistant Secretary for Domestic Affairs, Department of Commerce (in his statement submitted to Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services. Hearings, pp. 49-50) :

"The Department of Commerce is gravely concerned over the prospect of any action which would be detrimental to the continued existence of these domestic manufacturing facilities. This Department will support such remedial action as may be deemed proper, in regards to this industry, in order to preserve an adequate mobilization base from which wartime expansion can be accomplished to meet this country's needs in time of national emergency.

"With the rapidly advancing technological developments which are so manifest today, and with the increasing trend toward more precision, automatism, and highly controlled processes; the skills and facilities of the jeweled watch industry, which are so admirably suited for precision and miniaturization, should be recognized as being increasingly important and vital to the national welfare. In view of the historical rôle of this small and highly specialized industry, some of which has been cited in this statement, detailed statistical proof of its strategic importance should not be necessary. * * * The Department of Commerce, with particular emphasis on its responsibilities for mobilization planning and assuring adequate production capacity to meet essential civilian needs, supports the position that serious damage would be done to the wartime strength of the United States if our domestic facilities for the manufacture of jeweled watches are permitted to deteriorate below the levels determined to be adequate for wartime expansion."

22. July 1, 1954, Assistant Secretary of Defense for Legislative and Public Affairs (in a letter to the Director of the Bureau of the Budget) :

"The Department of Defense is vitally concerned with the production capacity of the jeweled and nonjeweled watch industry to meet military mobilization requirements. This industry produces such products as jeweled watches and movements, mechanical time fuzes, and other special timing devices which are essential to the conduct of successful military operations."

23. July 13, 1954, the Defense Mobilization Board expressed agreement with the recommendations of the special report of the ODM Interdepartmental Committee on the Jeweled Watch Industry (par. 18 above).

24. July 23, 1954, Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services (in its unanimous Report on the Essentiality of the Watch and Clock Industry) :

"The highly skilled workers in the American watch and clock industry, who require long years of training and experience, and their unique ability to develop and produce, within the shortest time possible, precision instruments to minute tolerances, are essential to the national defense. Therefore, it is in the interest of national defense to keep this essential industry alive and vital."

25. July 27, 1954, White House press release (accompanying the President's proclamation putting into effect recommendations of the Tariff Commission with respect to the rate of duty on imports of watches) :

"The President's action will have an important collateral effect in contributing to the maintenance of a satisfactory industrial mobilization base for the domestic production of watch movements and other precision devices necessary for national defense."

At his press conference the next day, President Eisenhower stated that: "We had to preserve certain kinds of skills in the United States." He spoke also of "this ability to deal with very fine tolerances," and added that we should try "to save roughly 20 to 25 percent of our market for our own people in this field."

26. May 1954, United States Tariff Commission (majority views of Commissioners Brossard, Talbot, and Schreiber) in its report to the President on escape-clause investigation No. 26 (p. 20) :

"The well-being of the industries producing jeweled-lever and pin-lever watches and watch movements has been seriously impaired by ever-increasing imports; the remedy lies in restoring to those industries greater participation in this:

United States market. In no other way can the facilities for making watches and perpetuating watchmaking skills in the United States be assured, and the maintenance of these facilities is vital to the national defense."

27. January 13, 1955, Office of Defense Mobilization (in its press release announcing the establishment of an Advisory Committee on the Watch Industry stated that):

"It's function will be to recommend to [the Director of Office of Defense Mobilization] any measures which should be taken to maintain the domestic watch industry in a healthy condition over a long period and to assure the preservation of essential skills of the industry at a level sufficient to provide for the Nation's mobilization base requirements."

28. January 17, 1955, Secretary of State John Foster Dulles (testifying before the House Ways and Means Committee on H. R. 1, transcript p. 71):

"* * * Our action on Swiss watches helped to preserve a mobilization base in that industry, a sufficient vitality in the industry so that in case war came, and we were cut off from the arts and skills of Switzerland, there would still be a residuum that was needed for this country in this country."

29. January 19, 1955, Harold E. Stassen, Director of the Foreign Operations Administration (testifying before the House Ways and Means Committee on H. R. 1, transcript pp. 238-239):

"The purpose was to have a substantial importation of Swiss watches but not an overwhelming importation so that you would insure the maintenance of a domestic watch industry at a level consistent with United States defense and economic policy * * * It is not a question of whether they have a pleasing effect [on the confidence of other governments in United States trade policy], but whether their final effects are sound in the economic policy and security policy of the United States."

30. April 27, 1955, Secretary of Defense Charles E. Wilson (in a letter to Senator Saltonstall and eight other Senators) stated that the Defense Department letter of July 1, 1954, to the Director of the Budget (cited above) and the testimony of the Assistant Secretary of Defense (Supply and Logistics), on June 30, 1954, before Preparedness Subcommittee No. 6 (also cited above): "represents the authoritative statement of the Department of Defense on the essentiality of the horological industry".

31. June 8, 1955, Preparedness Subcommittee No. 6 of the Senate Committee on Armed Services (in its staff study on the Essentiality of the American Horological Industry, p. 7):

"The record is replete with many, many instances of the military services calling upon the horological industry with urgent requests for production of vital precision devices and instruments which were so badly needed to win a war. Had not the skills of this industry been available our ability to have won World War II would have been seriously impaired. A dissipation and loss of these same skills by allowing this industry to deteriorate would be a blow to national defense in another emergency.

"Past experience shows that sound planning for mobilization requires the maintenance of a healthy watch and clock industry. We must not disregard this experience."

The study concludes that (p. 13):

"It is axiomatic that in time of national emergency, all components of our industrial machines are essential to the country's defense. American watch and clock makers, however, are peculiarly essential, not only in periods of crisis but, in the considered judgment of the subcommittee, in peacetime as well. Their availability in wartime depends upon a continuous peacetime existence at an operating level which utilizes, to the fullest extent possible, the unique, indispensable skills which the horological industry possesses."

Representative BOLLING. Our next witness is Mr. Arthur B. Sinkler, chairman of the board and president of Hamilton Watch Co., Lancaster, Pa. His experience since graduating from the University of Pennsylvania has included a great variety of technical jobs in the Hamilton Watch Co., including position adjuster, supervisor of assembly, supervisor of research, foreman specialities assembly, foreman assembly research, director of quality, and director of research. He has held the top position in the company since 1954.

Mr. Sinkler, we are happy to have you with us. You may proceed as you wish.

**STATEMENT OF ARTHUR B. SINKLER, PRESIDENT OF HAMILTON
WATCH CO., LANCASTER, PA.**

Mr. SINKLER. Thank you, Mr. Chairman. In an effort to provide the committee with an independent examination of the economic aspects of the defense essentiality of the watch industry and its relation to foreign economic policy, our association retained the services of Prof. Josef Solterer, chairman, department of economics, Graduate School, Georgetown University. The paper prepared by Professor Solterer was submitted to the subcommittee on Monday and incorporated in the record of these hearings. We deeply regret that the committee did not find it possible for Professor Solterer to testify on Monday and to present a summary of his views personally.

I mention this because yesterday and the day before questions came up before the committee about the nature of the cartel. I recommend particularly to this committee the section of Dr. Solterer's work, beginning on page 21, which is the best description that I have yet seen of the organization and strategy of the Swiss watch cartel.

Today you have heard testimony from Mr. Bulova, General Bradley, Mr. McMorro, and Mr. Mote concerning the nature of jeweled watchmaking facilities and the importance of those facilities to our defense economy in time of emergency. I would like to discuss some other aspects of the problem posed by the subcommittee's statement that:

Further study is required of the whole concept of defense essentiality if it is not to dominate over other necessary factors in trade policy.

For the purpose of such a study, I do not understand why the watch industry was selected. With respect to the watch industry, it is trade policy which has dominated over all other considerations. The watch industry case is not an example of trade restrictions, but a perfect example of what the trade program has done for foreign nations. The trade results from the 1936 agreement with Switzerland were so phenomenal that no one who worked on the agreement in 1936 could possibly have foreseen the wealth that it has created in Switzerland. Let's look at the facts:

Before 1936 the United States domestic watch industry and the Swiss watch industry shared the United States market about equally. In the year 1936 the Swiss watch industry employed 27,000 people and had about 10,000 more unemployed. In the same year the American watch industry employed 6,500. In 1936 the trade agreement between the United States and Switzerland became effective.

Exports of watches from Switzerland to the United States immediately increased and rose phenomenally during World War II. By 1955, the Swiss watch industry employed 75,000 with no unemployment and over 4,500 foreign workers residing in Switzerland on temporary work visas to supply additional labor for the booming Swiss watch industry.

Commercial production of watches disappeared during the war, the domestic facilities being needed in their entirety for war material. Thereafter the domestic industry reached a high point, in 1951, producing 3,100,000 watches with 9,300 employees. This was a postwar peak.

Since then domestic production has declined steadily, reaching a low point of 1,700,000 units in 1954. Employment on the manufacture of watch movements dropped to 4,200.

Finally in 1954 some attention was given to the other side of the problem—the need for preserving an industry essential for national defense. With a statement recognizing the essentiality of the industry, President Eisenhower withdrew most of the concessions granted in 1936. The relief granted has stopped the downward trend of declining domestic production.

But the furor in Switzerland has not stopped yet. Indeed, the very wealth created by this trade agreement in Switzerland is now being used to propagandize the United States.

Following the President's action in 1954 the Swiss watch cartel directed that the advertising fund which it exacts from Swiss watch producers be used for—

a very special effort to keep American opinion acquainted with the position of the Swiss watch industry in the face of the serious attacks to which it has been exposed.

That is a quotation from Switzerland.

This advertising funds is maintained by a 50-centime (about 12½ cents) levy on each of the 25 million jeweled watches exported annually by the Swiss. These funds have been poured into a nationwide newspaper and magazine advertising campaign to convince the American people (1) that Switzerland has been injured by the President's action and (2) that American export industries have been injured as a result of Swiss reaction.

The facts of the matter are so remote from the half-truths and deliberate lies which have been drummed into the American public through the Swiss propaganda that it seems almost hopeless to bring rational thought to play on the matter. Nevertheless, let us take another look at the facts. I ask the committee to consider the technical memorandum prepared by a consulting economist, Mr. Sidney G. Tickton, of New York, which appears as an appendix to Professor Solterer's paper, submitted for the record on Monday.

In thoroughly documented detail Mr. Tickton establishes that in the period which has followed since the tariff increase the Swiss economy has reached new heights and the Swiss watch industry has suffered no actual injury. While the value of Swiss exports of watches to the United States dropped 0.6 percent, between 1954 and 1955, the value of Swiss watch exports to other countries increased 10 percent. By number Swiss watch exports in 1955 reached 36,200,000—an all-time record exceeding Switzerland's previous peak year of 1951 by 100,000 units.

So far as the Swiss economy itself is concerned, every major category of Swiss exports increased in 1955. Overall Swiss exports increased 6 percent. While the rate of increase was somewhat less to the United States, Swiss exports to this country did increase by 8 million francs in 1955 over the year of the President's tariff increase, 1954. The Swiss balance of current payments for 1955 again showed a surplus.

It is common knowledge that the Swiss economy is one of the strongest in the world. (See chart, p. 113.) In 1955 increases were registered in total industrial employment, in the number of foreign workers that were brought into Switzerland to augment the labor force, in retail

sales, and national income, in electric power consumption. The chart shows also that unemployment has been steadily dropping so that at the present time there are only 2,700 registered as unemployed in Switzerland and some 270,000 workers from foreign countries working in Switzerland to augment the force. It also shows that the rate of increase of national income for the Swiss exceeds the United States by a factor of almost 2.

Gentlemen, let me remind you that we have lost more employment in the domestic jeweled-watch industry in the last few years than there is unemployment in all Switzerland from all causes.

It remains, then, to consider what effect, if any, there has been on the economy of the United States, particularly on the export industries of the United States, as a result of the President's action in 1954. I invite your attention to table IV, attached, as is shown on the next page, which sets forth United States exports to Switzerland of all commodity groups with a volume of over \$2,500,000 by value. Significantly, whereas total United States exports to all countries increased from 1954 to 1955 in the amount of 3 percent, our exports to Switzerland increased 6.3 percent. The detail on the table shows remarkable increases in most of the commodity groups.

(The table referred to is as follows:)

TABLE IV.—United States domestic exports and exports to Switzerland of selected commodities,¹ 1952-55 and percent change, 1954-55

[Dollar amounts in millions]

Sub-group code No.	Commodity group	1952	1953	1954	1955	Percent change 1955/1954
	Total domestic exports.....	\$15,025.6	\$15,625.8	\$14,948.1	\$15,389.8	3.0
	Total exports to Switzerland.....	147.5	131.2	150.4	160.7	6.8
080	Leather.....	1.6	2.8	2.5	2.6	4.0
100	Furs and manufactures.....	4.1	5.3	4.3	4.8	11.6
130	Grains and preparations.....	14.9	2.7	2.7	6.8	151.9
150	Vegetables and preparations.....	2.8	4.1	2.7	4.0	48.2
160	Fruits and preparations.....	2.7	2.8	3.4	3.7	8.8
233	Rubber and manufactures except special category 2.....	1.9	1.7	2.0	2.7	35.0
310	Tobacco and manufactures.....	9.9	9.8	9.8	9.3	-5.1
330	Cotton, unmanufactured.....	6.8	4.0	7.2	2.9	-59.7
420	Synthetic fibers and manufactures.....	9.4	11.3	9.7	9.8	1.0
550	Nonmetallic minerals, not elsewhere classified.....	2.3	2.7	3.1	3.9	25.8
575	Steel mill products, rolled and finished.....	7.2	6.9	10.5	12.6	20.9
595	Metal manufactures except special category 1.....	1.8	1.7	2.1	2.7	28.5
625	Copper ores, concentrates, scrap, and semifabricated forms.....	8.2	3.9	6.6	6.3	-4.5
702	Electrical machinery and apparatus except special categories 1 and 2.....	4.2	4.1	3.8	4.6	21.1
725	Construction, excavating, mining, oil field and related machinery.....	3.9	3.1	3.2	4.9	53.1
760	Industrial machinery not elsewhere classified.....	3.1	3.8	3.8	3.7	-2.6
770	Office machines and parts.....	3.0	3.1	3.1	3.5	12.9
815	Automobiles, trucks, buses and trailers, parts and accessories except special category 2.....	6.5	8.7	9.1	10.9	19.8
845	Coal-tar products, except special category 2.....	1.3	0.6	3.7	3.5	-5.4
850	Medicinal and pharmaceutical preparations.....	2.8	2.5	3.0	4.2	40.0
865	Chemical specialties except special category 2.....	3.7	4.0	4.4	5.3	20.5

¹ All 3-digit commodity groups with exports to Switzerland in 1955 over \$2.5 million in value, and commodity groups in which there is significant production in Detroit, Mich.

Source: U. S. Department of Commerce, United States Exports of Domestic and Foreign Merchandise, Country of Destination by Subgroup, Rept. No. FT 420, calendar years 1952, 1953, 1954, 1955.

Mr. SINKLER. The only group for which a significant decline occurred is that of unmanufactured cotton.

It is typical of Swiss distortion that the Swiss watch propaganda organs in this country have been circulating throughout the South full-page advertisements which suggest that there is a direct relationship between this decline in Swiss purchases of United States cotton and the watch tariff problem.

The explanation of this decline, however, does not lie in anything connected with the watch problem. To understand the cotton problem it is helpful to examine briefly a breakdown of Swiss imports of cotton from various countries by the cotton year of August through July, as shown in the following table:

Swiss imports of cotton

[In 1,000 bales]

From	Year, August-July			7 months, August-January	
	1952-53	1953-54	1954-55	1954-55	1955-56
All countries.....	154.5	169.2	171.6	112.1	108.7
Egypt.....	67.9	68.3	39.4	20.1	34.0
Mexico.....	13.8	21.7	25.4	21.5	29.3
Peru.....	20.2	25.5	27.8	19.6	19.2
United States.....	35.2	29.0	52.2	38.4	9.1

Source: Industrial Cotton Advisory Committee, World Cotton Statistics (1956).

This table shows that Swiss purchases of cotton from the United States actually registered a substantial increase during the first full year which followed the President's tariff increase. The sharp decline shown for the 7-month period ending January 1956 was due entirely to a drop in the world price for cotton in relation to the United States export price. We are advised by the Foreign Agricultural Service of the Department of Agriculture that the decline in Swiss purchases of United States cotton was attributable entirely to the fact that Mexican and Egyptian cotton was selling at about 5 cents a pound below United States cotton.

The same kind of deliberately misleading propaganda has been directed at the tobacco growers, particularly in the State of Maryland. The Maryland tobacco farmers have been served for 2 years with dire threats that the Government's action to preserve the watch industry would have disastrous effects upon the sales of Maryland tobacco to Swiss buyers. The Swiss bought more Maryland tobacco in 1955 than in any year in history, as shown by the following table.

United States exports of Maryland tobacco to Switzerland by crop year

Average, crop year:	Declared weight (1,000 pounds)
1934-35 to 1938-39.....	1,412
1947-48 to 1951-52.....	5,063
1952-53.....	5,272
1953-54.....	4,837
1954-55.....	5,283

Source: United States Department of Agriculture.

I ask you to remember, gentlemen, that these are not careless mistakes nor examples of idle gossip. They represent the powerful Swiss watch cartel at work to mislead deliberately the American public, including the Congress and the committee. This is an economic war in which we have asked our Government for some degree of the help which the Swiss cartel has had from the Swiss Government in fullest measure for over 20 years.

I ask you to consider, also, that this is not our fight alone. Our companies can survive and prosper. But to do so we may have to abandon the production of watches.

All of us have discovered that there are more profitable things than making watches under present conditions. We can all import all of our watches and divert our manufacturing facilities to other more profitable activity. No one need be concerned about the economic health of the Hamilton Watch Co. But there should be considerable concern as to the continued preservation of its watchmaking skills.

It is clearly up to the Government to decide whether or not a watch industry is essential to national defense and, if so, what measures should be taken to preserve it. We will do everything we can to assist the Government in preserving the industry.

Allow me to offer the following suggestions:

1. The question of preserving an essential industry cannot be discussed intelligently aside from the question of injury to that industry. All industry is essential in the sense that if the United States did not have a strong, healthy industrial base for military production, we would be weak and invite aggression. The question of defense essentiality as presented in section 7 of the Trade Agreements Extension Act of 1955, however, is limited to the industry that makes a necessary contribution to the industrial base and whose ability to perform its mobilization function is threatened.

2. There is no such thing as the stockpiling of skills for the manufacture of particular defense items. And this is one point on which there seems to be unanimity of opinion of all the witnesses who have appeared since Monday. I suppose that raw materials can be stockpiled, although in our experience this has never been overly successful; but all of our experience proves that skills cannot be stockpiled. The only way to have a mobilization base for the manufacture of timepieces, for example, is to maintain continuous production of watch movements.

3. In determining the level at which an industry is to be maintained, some consideration should be given to whether or not the assigned level is economically sound for that industry. Little will have been done to preserve an industry if the level of production assigned to it is so low as to be uneconomic.

4. In determining the question of defense essentiality, some weight should be given to the experience in World War II and the Korean emergency. As Mr. Mote explained, this is one of many factors to be considered in determining essentiality. But the lessons of experience will always have validity in these determinations. For example, all sorts of statistics have been shuffled about Washington to prove that fuzes can be made by most anyone; but the facts are that in World War II the horological industry of Japan was the backbone of the fuze production for the Japanese war machine, the horological

industries of Switzerland and of Germany were the backbone of the fuze production for the German war effort, and the horological industry of the United States was the backbone of the fuze production for our defense. Britain which had no watch industry soon realized its weakness in this respect and set about immediately after the war to create a new watch industry there. Lessons taught by history should not be lost sight of because of the sophistry or political pressure by those whose commercial interests are best served by increasing imports.

5. This committee has expressed concern that false claims of defense essentiality may interfere with the development of our trade program. As indicated by our experience, I suggest that the committee consider also the possibility that with respect to specific industries, those who have an undue commercial interest in the trade program may make claims that interfere with the preservation of essential skills and facilities.

6. The question of defense essentiality of a particular industry should be examined and then laid at rest for a while. Some certainty and permanence as to the Government's attitude on a question of this type will do more than anything else to create a healthy industry.

I think that these propositions are important. I think it is particularly important, however, that a determination of essentiality be firm. The uncertainties of examination and reexamination are in themselves depressing to an industry. Continuing uncertainties affect the willingness of able young people to join the companies in the industry being investigated and upset the attitude of the consumer and shake the faith of the investor. In the long run, these are the three most basic ingredients contributing to the continuing success of a business enterprise.

As I thank you, Mr. Chairman, I would like to say that I have been timing my talk by an electric watch which the domestic industry is now producing, and we hope soon to be able to market.

Senator FLANDERS. Excuse me just a moment? You say you have an electric watch?

Mr. SINKLER. Yes, sir.

Senator FLANDERS. What is the motivating power?

Mr. SINKLER. There is a tiny battery, sir, which was included in the movement itself.

Senator FLANDERS. So it is motor-driven by a dry battery?

Mr. SINKLER. Yes, it is, by a dry battery about the size of an aspirin tablet.

Senator FLANDERS. Thank you.

Representative BOLLING. Thank you very much, Mr. Sinkler.

Representative TALLE. Is it self-charging?

Mr. SINKLER. Not yet, sir.

Representative BOLLING. Our next witness is Mr. Walter W. Cenerazzo. He is a printer by trade. He was formerly an organizer for the A. F. of L., and then in 1943 became the founder and president of the American Watch Workers Union, an independent union for the jeweled watchworkers of Elgin, Ill.; Lincoln, Nebr.; Lancaster, Pa., and Waltham, Mass. Mr. Cenerazzo is well known as an articulate spokesman for labor interests in the jeweled lever watch companies.

We are happy to have you with us, and you may proceed as you wish.

**STATEMENT OF WALTER W. CENERAZZO, PRESIDENT, AMERICAN
WATCH WORKERS UNION**

Mr. CENERAZZO. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, being a printer by trade, I thought it would be well if I brought with me today some members of the union who represent the employees of Elgin, Hamilton, and Waltham. Our organization is a small national unit. We are not independent through choice, we became independent because the union which had the jurisdiction in the watch industry, the International Jewelry Workers Union, refused to organize employees of the industry. We dissolved ourselves away from that union in Waltham and then recreated a new, independent union and organized Elgin and Hamilton.

If you will permit me, I would like to have Bill Hameister, the president of the union, to stand. He is a watchmaker in the assembling department of Elgin. And, Mr. Ralph Frey, the president of the Hamilton Watch Workers Union who works in the service department and who is a watch assembler by trade. And Mr. Chester Schreck, also of Hamilton, who is a diemaker with over 30 years' experience as a diemaker. Next is Mr. Raymond MacNally, who is a diemaker and works at the Waltham Watch Co. with over 36 years' seniority at Waltham Co.; and Pat Caruso, who works as an assembler at the Waltham Watch plant, with over 25 years' seniority. And, Fred Gearheart, who works in the plate department at Hamilton; and Charles Kirckner, who works in the escape department.

These men have witnessed the decline of employment in the three American jeweled watch companies during the last 10 years and are here to verify the facts if you should want to cross-examine them after my statement.

Representative BOLLING. We are glad to have them all here, sir. You may proceed.

Mr. CENERAZZO. I first learned about this hearing about 2 weeks ago. We were in negotiation with Elgin National Watch Co., and our negotiations did not conclude until Friday afternoon. Therefore, we were not able to get all of the data which we desired to present to this committee.

You know, if you sat where I have been sitting since 1941 and you saw the things with your own eyes and you were an honest person trying to evaluate correctly, you could not justify the statements that were made in this room yesterday by Mr. Lazrus of the Benrus Watch Co. and by the other importers with the facts. After all, there is logic and commonsense in any conclusion, and it must stand up before the facts.

The American jewel watch industry for a great many years was composed of 16-department companies, each department running on its own merits like a little factory of its own, coordinated at the top with a movement control and an assembly division. Starting in about 1938, 1939, a new type of management started coming in the industry, as exemplified by Mr. Sinkler here at Hamilton, Mr. Shennan, Elgin, and Mr. McMorrow, Waltham, and Mr. Bulova with the Bulova Watch Co.; people who started taking a coordinated precision type of thinking and coordinating their manufacture.

Today, if you go into a watch factory in the United States, here is what you find: You find probably the most precision type of coordination between employees, teamwork, and the product being passed from one to the other. You find skills that have been separated and have been assigned to different employees. You find, instead of a piecework system in a factory, a group system by which one employee's pay is controlled by what another employee does further down the line. It is a complete teamwork operation which, in turn, has reduced unit cost tremendously.

Now what has happened to the employees of this industry who have cooperated to bring about these technological improvements to reduce unit cost is that they have come into a twin squeeze. First, the market has declined from the standpoint of the American employers. Elgin used to produce a million and a half watches and now only has a schedule of 900,000 watches. Hamilton, who had a 700,000-watch production, is now down to less than a 400,000-watch production. Waltham, who used to have a production of around 250,000 or 300,000, now has a production of around 15,000 units a year. So that, you find yourself in this position. And it is highlighted much—I would like to give you an example—like the skilled workers in the assembly department.

In 1948, the Hamilton Watch Co. had 224 persons on skilled jobs in its assembly department. Today it only has 95 persons in that department working on skilled jobs. The total employment in the assembly department of Hamilton in 1948 was 680 persons, and today it is 225 persons.

The total employment at Hamilton at the Lancaster plant in 1948 was 2,190. In the automatic department—the automatic department is the department which makes some of those little screws that you saw and the new parts there—there were 70 employed. In the service department, which is the department which services the watches which come back for customer guaranty and so forth, there were 100.

There were 680 in assembly. Then, you go on to 1956. In April of 1956, you had 940 employed, total employment, by Hamilton in its Lancaster plant. And, there is no other watch production anywhere else, or any other type of production anywhere else, that is correlated by the Hamilton Watch Co. The automatic department has been reduced to 35 people. The fuze department, which did not exist in 1948, was up to 300 in 1953 and down to 50 in 1956. The service department, which started off with 100 in 1948, is down to 50.

The assembling departments, and this is an interesting thing when you watch the decline, went from 680 in 1948 to 515 in 1949, 500 in 1950, 310 in 1951.

Now in 1950 we introduced the first automatic assembly line, where you went from the craft method of assembling watches to an assembly-line method of assembling watches, and at that time the cut in the number of people to produce a watch movement in assembling went down about 40 percent.

Then you come down to 1952 and there were 345; 1953, 300; 1954, 230; 1955, 240; and 1956, 225.

Now, another innovation came in on assembly lines. The Hamilton Watch Co. and the Elgin Watch Co. went to France and they brought in the Lip line. A French manufacturer developed an assembly line

which was superior to anything known to the world at that time. They brought it back here, put their own twists on it, and again we had a further improvement in the assembling of Swiss watches. So, that brought a further decline in employment.

Now, if the volume had stayed up and had grown the same as the rest of the American economy, we would have no problem. What has happened in other American industries is that as technological improvements and automation came in, you had expanding employment in the automation, the shock of automation was taken up by the increased volume. Here we have been knocked down by decreasing volume plus these other elements coming in.

Now we have worked out a pool type of seniority. In order to preserve these skills, we have worked out a pool type, whereby these people come back into semiskilled and unskilled jobs. We have hundreds of people in the Elgin plant in Elgin, Ill.; the Lincoln plant in Lincoln, Nebr.; and at the Hamilton plant and the Waltham plant that are working on jobs that are giving them from from 40 cents an hour to 85 cents an hour less.

Senator FLANDERS. Just a moment. May I make an inquiry?

You mention the Lincoln plant at Lincoln, Nebr. That is the first time, I think, that I have been here at these hearings when that plant has been mentioned. Is it a jeweled lever plant?

Mr. CENERAZZO. It is an Elgin plant.

Senator FLANDERS. It is an Elgin plant?

Mr. CENERAZZO. And I appreciate your bringing that point up, because I think that is one of the most interesting stories in contrast to what Mr. Lazrus said yesterday.

The Elgin Co. took over at the plant in Lincoln, Nebr., in 1954. It moved all its entire plate department, took its skilled people out with it, and set up the group system of assembling plates in Lincoln, Nebr., and set up the assembly line method of production—

Senator FLANDERS. And it still operates in Elgin?

Mr. CENERAZZO. It still operates Elgin, but it has moved its overflow for expansion, because they were down to 2,500 or 2,600 people at the end of World War II.

The time that it took to train the skilled people was anywhere from 3 to 5 years. So, they had young men who came out of the service, graduates of college, some of them graduates from high school, who went into that plant and served an apprenticeship under the GI bill of rights, and other things, and after they arrived where they could start earning some money, then the decline of the watch industry came.

If you want to see an embittered group of men, I would like to take you out to Lincoln, Nebr., and let you interview that embittered group of young people who, having learned a trade, felt they were set for life in the watch industry, and bought homes. Now you find them on girls' jobs, making 60, 80, to 90 cents an hour less than they should be earning. All they are doing is simply standing by and waiting.

The job of training that Elgin did at Lincoln was phenomenal, and after having done it, it found its employment going down. That plant used to employ about 2,300 people. Today it has less than 800 people employed in production in that plant, and you have all these skills and all this training being dissipated in the United States.

Now, coming back to the Hamilton plant, I would like to go to the escape department. The escape is 1 of the 2 things which the Government of Switzerland is very touchy about showing to anybody who goes to Switzerland. No one gets taken into an escape plant because that is just private property. I crashed about everything there was in Switzerland, but the one thing I was unable to crash was an escape plant. It was just taboo.

Senator DOUGLAS. They must have been pretty tough if you could not crash it.

Mr. CENERAZZO. I assure you, I tried it.

The interesting thing about it is that Hamilton had 4 setup men employed on that in 1948, and today there are only 2. There were 3 position pallet stone men in 1948, and there is only 1 today.

Now those are skills that you do not just go out and buy like a peck of potatoes, or people that you can train easily. They just disappear. When those fellows lose their jobs, they are adaptable to other industries, and they just disappear, and they are never again available. I mean, you cannot stockpile and preserve employees who leave.

The point I am trying to make and bring home is this: I have seen a depression during prosperous times. I have seen a depression come at Waltham; I have seen it happen in Lincoln, Nebr.; Elgin, Ill.; and Lancaster, Pa. And right around these people there are plenty of opportunities, ads galore. I would simply like to give to the committee a group of ads in the Lancaster newspapers for skilled people. They are appearing every day, and they are willing to pay moving expenses; they are willing to take people out of their community.

At Waltham we have had people at the plant gates, at least, I would say, 75 times in the last 5 years looking to take the people to other communities, as well as in the greater Boston community.

Now, a diemaker gets laid off. What is a diemaker in the watch industry? He serves 4 years apprenticeship as a machinist. After that, he then serves some time as a graduate machinist and then he starts to learn toolmaking. Then, he starts to learn diemaking. The apprenticeship period we have established by contract at Hamilton and Waltham is 10 years. The job evaluation is based upon 10 years' experience. Now you can take any watch diemaker or watch toolmaker and send him into any other plant, and he will make the grade within a week. But you take anybody from any other industry and bring him into the watch industry, and I defy any toolmaker or diemaker in America to come into one of those plants and make the grade in less than 2 or 3 years after having served the 10-year period. And I leave that to the management of any of these companies. I have seen it happen time and time again.

Now Waltham had an experience here about a week ago. They advertised for a diemaker. Their seniority list has been exhausted. All the fellows have been placed in other companies where they have seniority rights, they have vacations with pay, and they have lost their seniority at Waltham because they would not come back. Now they are anchored and are not sure that the future of Waltham is secure. They are not as sure as Mr. McMorrow, and they won't come back. They place an ad and end up with a fellow who has been laid off temporarily. They offer him good money, bring him to the Waltham plant, and he gets assigned to a job. He goes over and stays

about 20 minutes and says, "Look, you can have this job." He says, "Man, I cannot even see it, let alone work on it."

Now that is an actual experience that these companies have had time and time again.

Now when we talk about preserving skills, when these people are laid off, do you think they are going to stand by until Mr. Sinkler calls them back, Mr. Shennan calls them back, or Mr. Bulova, or Mr. McMorrow?

They are going out and get jobs. Unemployment compensation only runs for 30 or 36 weeks, and they have to go out and earn a paycheck. Now when they get a job and get anchored, they are not going to come back; and I do not think that Mr. Bulova or Mr. McMorrow or Mr. Sinkler or Elgin can go ahead and train a person on a simple job without a training cost of \$600 to \$1,000 per employee—on the simple jobs. I defy any economist in America to come into those plants and sit down and work it out job by job.

I know what the pay is, the transfer rates are, and I know what it costs for a person when they first come in and how much they earn.

We have a group system of payment at the Elgin plant. An employee gets 6 weeks' guaranty when he first gets introduced to the group. Then he gets paid what he actually earns. And you should hear the squawks in the 6 weeks when he is paid the full rate until when he is reduced to a training rate and on upward. You should hear the squawks, because it takes them anywhere from 3 to 4 or 5 months before they can earn what the other people do on simple jobs. Then, when you move them so that they can do 3 or 4 jobs, on the simple jobs that have to be done, it takes more training cost. Now I say it is at least a \$600 to \$1,000 cost at the minimum.

Now on a toolmaker or diemaker, you have an investment anywhere from \$30,000 to \$40,000 in training cost. Where does that disappear?

One of the reason I fought so hard for the preservation of the Waltham Watch Co. was knowing the skills, the reservoir of skills, that were going to be dissipated. Today you find Waltham with three-hundred-some-odd employees; you find the total seniority list down from 2,358 people. They had 27 diemakers and 10 toolmakers on the seniority list in 1928, and they have 4 left, and no one on the seniority list today.

Now, is that essential to the national defense? I want to point this out: In Mr. Anderson's statement, and in Mr. Lazrus' statement, or the importers' propaganda—they always give you this business about time fuzes.

To me the fuze industry is the least important part of what the American jeweled watch industry can do. I think, fundamentally, the jewel-lever movements are the basis of the preservation of an industry essential to national defense.

Why do I say that? I saw the Marine Corps, I saw the Navy, I saw the Army, I saw the Air Corps come in pleading for hack watches during World War II. I saw us work girls 50 hours a week. We violated the State labor laws in order to get these things out, and everybody sat on the sidelines quietly to let it be performed. They wanted chronometers. The jobs that were there to be done it would take a year's time before you could start getting them out. Hamilton and Elgin never did get them produced because they did not have time to convert over.

However, no one else in America could have done it. Where was Eastman Kodak, where was Bendix and the rest of the outfits if they were so good? Why couldn't they make the chronometers? There were the railroad watches which were so essential to national defense. How can transportation run without time? The only one who can make them in America is the jeweled-watch industry, and the jeweled-watch industry is a small industry.

And where can you go and get the support except from your government? It is very interesting, you go to Switzerland and you find the Government there as nice as anybody could be, they are so diplomatic and friendly to you and they explain it. However, they are 100 percent behind Switzerland. You come to this United States Congress, and you find Members of Congress and Members of the Senate out there arguing for the Swiss watch industry and Swiss watch importers' story.

Now I have no objection to somebody being opposed to my viewpoint. That is every American's privilege. However, there is something very basic here.

Is this industry essential to national defense? All I can say to answer that question is you have to answer these questions: First, who can produce jewel-lever movements in America and where can America get them if these companies go out of business other than in Switzerland? There is no other source of supply in the world. So the answer is, do we need time, do we need jewel-lever movements in time of war? Japan surely needed it. Japan's timing was not good in fire. Why? Because their horological industry was not good.

Secondly, go into the town of Forchheim, Germany. I saw it with my own eyes. In 22 minutes we destroyed 23,000 people. The British Air Force, the Allies, went in and destroyed that town of 23,000 people in 22 minutes. Why; we are not brutal people that want to go and kill? The heart of the German timing industry was in that town of Forchheim, and we had to knock them out, knock out their time fuzes and knock out their timing industry. We went in and destroyed that town, and it is a monument in the turning point of the war, when we knocked out Forchheim. Now that is a matter of history. You do not have to take my word, you have enough available sources to go ahead and check these facts.

Now another point is the time fuze industry. I do not think that is the basic thing that we are good at. However, I know this, Thomas Edison had to come and hire somebody away from Waltham during the war in order to get started in Orange, N. J. I know other people who had to come to the American jeweled-watch companies to get the know-how, the understanding, of time fuze mechanisms.

Now that is an interesting thing. One company can have it and somebody can steal it from that company, but they cannot develop it on their own. That is exactly the position that these other companies are in who now say they can do time fuzes. They do not have the intimate know-how and the knowledge, and it is interesting to see how soon you can give somebody the blueprints and the order and how quickly you get production. I know what the jeweled-watch industry can do, I have seen it done.

And believe me, I do not get along with Mr. Sinkler here, and I do not get along with Mr. Elgin and Mr. Waltham. I mean, I happen

to have a personality, in industrial relations, that is not always the most suitable one to get along with. I fight for what we can get to the maximum and still keep them prosperous. Sometimes they do not like the techniques in which I go about it. However, there is one thing I do know, that I respect them for their fight here at this table and continuously for 12 years, in trying to keep this industry alive. Because all they have to do, and which some of them have done from time to time, is to pick up a telephone and order the watch movements from Switzerland, bring them into their plant, take the movements out of a little tin can and train a girl in 6 weeks to drop them into a watchcase, time them on a timing rack, and box them and sell them. There is no problem. They do not have a factory to deal with, all they have is a few little girls out on an assembly line.

Now the question comes up, do we preserve the skills? I would like to introduce this as an exhibit. These two are from Hamilton Watch, and I would like to have time, if you would, to present to the staff the same type of breakdown from Elgin and Waltham, because we have not had the physical time to do the same things here.

(The document referred to is as follows:)

Workers

SKILLED WORKERS IN ASSEMBLY DEPARTMENTS

Jobs coded	Employees on job	
	1948	Now
Major jobbers.....	46	17
Position hairspring.....	26	12
Final movement and finishing inspection.....	12	3
Escapement jobbers.....	7	3
Utility operator, through hookup.....	8	3
Train jobber.....	13	5
Assemble balance.....	5	2
Inspect lock and slide.....	6	3
Assembly train.....	15	8
Steel fit.....	14	7
Timing.....	16	8
Change screw.....	18	7
Dial and case.....	21	10
Minor jobbers.....	17	7
Total.....	224	95

SKILLED WORKERS IN ESCAPE DEPARTMENT

Setup men.....	4	2
Position pallet stones.....	3	1
Total.....	7	3

PLATE, PRESS, DAMASKEENING

Setup men.....	23	6
Scraper-burrer.....	12	6
Inspection jobs coded.....	18	10
Plating.....	4	2
Total.....	57	24

AUTOMATIC DEPARTMENT

Setup men.....	15	7
Automatic operator.....	63	21
General inspection.....	3	1
Total.....	81	29

Hamilton Watch Co., Lancaster plant—Production worker

[Figures are approximate]

Year	Total	Auto- matic depart- ment	Fuze Manufac- turing depart- ment ¹	Service depart- ment	Assem- bly de- part- ments
1948	2,190	70	0	100	680
1949	1,810	65	0	90	515
1950	1,620	55	0	80	500
1951	1,350	65	60	80	310
1952	1,450	70	190	75	345
1953	1,645	65	300	80	300
1954	1,135	60	125	70	230
1955	1,030	50	85	60	240
1956 ²	940	35	50	50	225

¹ Not possible to give number in watch departments who were engaged in fuze work at various times.
² All figures except 1956 were computed for the month of December. 1956 figures were computed for the month of April.

NOTE.—Figures for assembly departments are not strictly comparable because of physical changes.

Representative BOLLING. We announced, Mr. Cenerazzo, I think yesterday, that we were going to keep the record open until 4:30 Monday.

Mr. CENERAZZO. Mr. Sinkler is time conscious and has told me I have talked 25 minutes.

I would like to conclude with just this statement: The American jeweled watch industry is essential to national defense, and no one can disprove it. We have people in the Defense Department who never had the obligation of having to get, during World War II, timing mechanisms and jewel-lever movements, who gloss the situation over and have never faced reality. Some of those people fall for the wonderful spirit of Swiss cooperation, and when they write their reports, they do it accordingly.

However, when I got to the top level, to the man who had the responsibility, Charlie Wilson, and when he went and surveyed the situation, he took a solid position that this industry was essential to national defense. And I do not think Charlie Wilson is the type of person who can be influenced by a union leader. When I went to his office and explained our story, and he took a week to survey it, he supported this industry 100 percent.

Now I say this to you, because I feel that it is important that you understand the facts: This industry and the preservation of its skills is essential to national defense. And in closing, I want to say that Elgin, Hamilton, Bulova, and Waltham are going to live as companies, whether they are in the real-estate business or whether they are making electronic watches, or what have you, but the people who are employed in the jeweled watch industry are going to be in other jobs in other industries.

And when there is another war, what is going to happen? Whose responsibility is it? I say it is the responsibility of the Congress of the United States and the executive branch of the United States. And I think that because we have men of courage in the Congress who understand this problem, we are going eventually to get the kind of help for this industry that is going to bring us back and give us back a fair share of the consumer market of the United States.

I want to add one last thing, that the Swiss watch cartel ought to be thankful for President Eisenhower raising the tariff, because the watches were being flooded in this country, and they were getting cut-price sales. One of the things that helped the problem they had on excess distribution was the fact that importers went out and knocked out some of the importers who were distressing the market through department stores and so forth. They got a break, and yet they are kicking the executive branch of the Government. And what can we obtain? All we have is a status quo situation. We have less people employed than we ever did; we have not had a chance to keep pace with the automation and technological improvements which our industry is in.

And as a union, if we struck those plants because they would not accept the technological improvements, there would be Members of Congress who would belt our ears off.

Still, we do it, and what do we find? Do we find any help to go ahead and give us a chance to establish a fair share of the American market for the people that we represent?

I thank you.

Representative BOLLING. Thank you, Mr. Cenerazzo.

Our final witness this morning is Mr. Albert L. Reeves, Jr., general counsel of the Clock & Watch Manufacturers Association of America, Inc. His appearance is the sole one for the pin-lever industry, for reasons which have been explained. We are pleased, however, that he can be here to present the statement of that industry and to share in the discussions which will follow.

Mr. Reeves is the son of one of Missouri's most distinguished Federal judges. Mr. Reeves himself, at one time, ably and conscientiously represented in the United States House of Representatives the district which it is now my honor to represent.

Mr. Reeves, we are glad to have you with us.

STATEMENT OF ALBERT L. REEVES, JR., GENERAL COUNSEL, CLOCK & WATCH MANUFACTURERS ASSOCIATION OF AMERICA, INC.; ACCOMPANIED BY SEYMOUR INGRAHAM, E. INGRAHAM CO.; CLYDE PATTERSON AND LESTER LAVIANA, UNITED STATES TIME CORP.; AND M. H. BUDLONG, GENERAL TIME CORP.

Mr. REEVES. Thank you, Mr. Chairman. I am deeply appreciative of the kind words of the chairman, with whom I have had a very splendid friendship since the days I lost a game of political chair to him a few years ago. I can reciprocate the kind things which he has had to say about me in his introduction this morning.

I appear, not as a technician, but counsel for a group of 10 members of the Clock & Watch Manufacturers Association of America, identified for the purposes of this record as the domestic producers of pin-lever watches and spring-powered clocks.

I brought some reserves along because there may be questions which should be answered by persons technically qualified to cover points of interest to the committee.

These include Mr. Seymour Ingraham of the E. Ingraham Co.; Mr. Clyde Patterson and Mr. Lester Laviana of United States Time Corp.; and Mr. M. H. Budlong of General Time Corp.

At the outset, I want to say something before I forget it. In all of the discussion that is going on this morning about the production which other members of this industry, notably domestic jewel manufacturers and importers, have provided for national defense, I find some figures available to me of one of our companies, a manufacturer of pin-lever watches and spring-powered clocks. I have a rather impressive summary of the pieces which they have supplied to various other domestic manufacturers. Among these are such producers, already heard here, as Bulova, Elgin, Hamilton, Eastman Kodak, which has been mentioned, Eclipse, Gruen, and others. I find that the best customer for this pin-lever watch producer, which happens to be the E. Ingraham Co., was Gruen Watch Co. which, in 1952, procured 37 million pieces from Ingraham Co., and in 1953 procured 39,500,000 pieces from the Ingraham Co.

I believe, if I may, it would be desirable at this time to show you what we are talking about when we speak of pin-lever watches and spring-powered clocks. Therefore, I would ask that a display be presented in a very quick form.

These are watches produced by the United States Time Corp., by the E. Ingraham Co., and by Westclox division of General Time Corp. Sometimes there is a disposition on the part of other producers to disparage these products. I remember that the representative for the American Watch Association used to refer to them as the "Mickey Mouse watches" and character watches. Yesterday I think it was the representative of Longines-Wittnauer who had something to say about these watches being for the young people.

Now, there could not be a more complete misdescription of the function which these timepieces play, both in the pocket model and in the wrist model. They provide various desirable timepieces, very reliable timepieces, which serve the consuming public at a price range which everybody can afford. This is a product which stems from the days when the Waterbury Watch Co., the predecessor of United States Time Corp., found a way to miniaturize a clock movement, a clock escapement, to put it into a case and sell it for a dollar.

It had two great effects: One was to bring it within everybody's price range, and the other was to establish the pin-lever watch industry as one of the pioneers in this field of miniaturization. I will have something to say about that a little bit further with some other exhibits when the time comes. Now, essentially, we represent somewhat a third position to that which has been stated here today. This has become something of a battleground between the domestic jeweled-watch producers and the jeweled-watch importers, first, over the question as to whether or not the 1954 escape-clause decision was right; and, second, over whether one or the other is the more essential or, indeed, essential at all, to national security.

We think, if we may speak frankly, that the position of the pin-lever watch and spring-powered clock industry has been improperly subordinated in this proceeding. I am not speaking of this proceeding, but in some prior proceedings the parties and some of the Government agencies concerned have been a little bit disposed to shoulder aside this industry, the pin-lever watch and clock industry, as something of an addendum, something of an attachment to the jeweled-watch industry.

I would like to correct that misapprehension at the outset, if I may, because we have gotten a little bit tired of that kind of treatment in this overall picture relating to tariffs and relating to these determinations of defense essentiality.

I think the committee would be interested to know that this industry is the dominant supplier of timepieces in the American market. If you added together, Mr. Chairman, all of the jeweled watches that the domestic producers produce, plus all of the jeweled and nonjeweled watches which are imported into the United States, plus all of the clocks which are imported into the United States, you will find that the total is considerably short of the number of pin-lever watches and spring-powered clocks that this industry supplies to the United States market.

I may say that in the former total, you will find fewer than some 14,900,000 timepieces, whereas this industry supplies, or did supply in 1955, about 16,700,000 timepieces to the American market. Now, that will not continue very long under the conditions which we are confronted with today.

I have not included electric clocks for reasons which we have pointed out in our briefs, but we also supply electric clocks. However, if you added those, we would be overwhelmingly the leading timepiece suppliers to the domestic market.

Now, of course, these are not luxury items, they do not take freak shapes such as being as thin as tissue paper. They are not expensive, they are priced to serve the consumer. And this is the industry, if the committee please, which is the dominant supplier of serviceable timepieces to the American consumer at prices which he can afford.

Now the issues, as we understand them here, and there seems to be, in our observation, some departure from them in some of the testimony, are, first of all, what is the competitive position of the domestic timepiece industry with respect to imports. The second question is, if the domestic industry seems to be injured by imports, is there any justification for the use of the defense essentiality criterion to grant them special consideration? The third question is, if so, what are the proper criteria which can be applied to give that kind of protection to the industry? The fourth is, taking the watch and clock industry as a case in point, what are the evidences of its defense essentiality?

We will attempt to present, and extremely briefly because in 15 minutes it is rather difficult to present the views of 10 companies, Mr. Chairman—in the industry, which I think it must be agreed is dominant in the timepiece field in the United States. Very briefly, I will run through the content of the principal brief which we have filed, and I will ask Mr. Horwith to present some charts which we have prepared. I will also have some exhibits, which I hope the committee will give me just a moment or two to lay on the table for your examination.

First of all, with respect to this question of the competitive position of the pin-lever and spring-powered clock industry, you have to divide that into 2 sections because watches and clocks are dutiable under different paragraphs and have been subjected to tariff reductions under 2 different actions under the Reciprocal Trade Agreements Act. There are imported into the United States both pin-lever watches and jeweled-lever watches. I think the committee might be interested to know

that the average foreign value of a 0-1 jewel watch imported into the United States is \$1.70, based upon 1955 imports. The average value of a 17-jewel movement imported into the United States in 1955 was almost exactly \$7.01. Those are average values.

We have, of course, 5 jewel brackets—0-1, 2-7, 8-15, 16-17, and above 17.

Now, as it happens, and as it has been admitted here, a great proportion of the 2-7 jewel watches entering the United States are pin-lever watches, priced very low and competitive with domestic pin-lever watches. The same is true in the 8-15 jewel category. In the 16- and 17-jewel category, there are a great many pin-lever movements, also priced very low and competitive with domestic pin-lever watches.

I may say that some of the 17-jewel-lever watches are priced under \$16 and, therefore, are directly competitive on a price basis with domestic pin-lever watches. The fact of the matter is that I think if the committee will analyze the situation, it will find that more than 50 percent of all watches at all jewel levels imported into the United States are directly competitive with this industry and, perhaps, exclusively with this industry, on a price basis.

Now I have had mounted there, just as a matter of interest, a chart which we have used before, the only purpose of which is to show what happened in the United States watch market following the 1936 agreement with Switzerland. It was during the beginning of World War II, with the dip in domestic production occurring in 1942, when the Swiss gained their tremendous access to the United States market, an access which domestic suppliers, subsequent to the war, were never able to dislodge or to displace.

We have also made an analysis to determine what happened to bring into the market this tremendous saturation of imported watches, the thing that actually wrecked the market in 1953 with 13,367,000 watch movements.

I will ask that another analysis showing the distribution of Swiss exports be mounted there. I have bound into our principal statement a photocopy of the proceedings in the House of Commons in October 16, 1945, in which Sir Stafford Cripps, then president of the British Board of Trade, explained to the House of Commons what had been done in order to rebuild the British industry. At that time he told the House of Commons that Britain was crippled at the outbreak of World War II because she had no timepiece industry. And I have included the last November issue of the *London Economist* which is also bound into our statement. As they point out, prior to World War II, Germany undertook to destroy the timepiece industries in England and France because they were strategic and Hitler, therefore, subsidized exports to England to as much as 45 percent of German costs of production. The result was that the British industry just dried up and died. And when we documented the same facts in the escape clause proceeding 2 years ago, we named the companies and the months in which they went to the wall in England.

It was a fact that Britain came to the United States in desperation for time fuzes and other timing devices when the war broke out. That gave us our lead time in production for our own requirements.

Following the war, Sir Stafford Cripps told the House of Commons that they could not permit the watch and clock industry to remain

as it had been prior to the war. He said that they had imposed quantitative restrictions on imports, that is to say, tight quotas, as the Economist has described them, within the last 6 months. He said that tariffs were to be raised approximately one-third, and in some instances better than a third.

I will not go into the rest of that detail because it is time-consuming. However, the fact of the matter is that the British embargoed imports of watches and clocks. For example, with respect to watches, whereas prior to the war, and we have given you the figures, the official British figures supplied to our Department of Commerce, they had imported about $7\frac{1}{2}$ million watches, they cut that to $1\frac{1}{2}$ million as their embargo program, their quota program, went ahead.

Now what happened, Mr. Chairman, was that those 6 million watches were simply diverted into the United States market where there was no effective protection against them. And that is the factor that distorts this whole picture to the point where you cannot say that the watch case represents normal functioning of the trade-agreements program, and for that reason it may not be the typical case in point which you were searching for, against which to raise this discussion of the appropriateness of the defense essentiality criterion.

That situation attains today and it is, I think, the root cause of the changes in the United States watch market in the several years stated there, 1937, 1947, 1950, and 1953.

In the next shaded area above, you will see what the British share of that market was: The British share, under the pressure of the quota which they established, dropped from $31\frac{1}{2}$ percent to about 4.7 percent of all Swiss exports. The United States share rose from $14\frac{1}{2}$ percent to nearly 41 percent, and that is the thing that distorts this whole picture today.

So, we repeat, that the difficulty has been that you cannot use the watch case as a true test of the application under normal circumstances of the trade-agreements program.

Now the next thing that the committee is interested in, and it has been roundly debated already, is the escape clause action which was taken in July of 1954. The point I want to make there is that so far as this industry is concerned, it did not only not give us any help, it harmed us.

I would like to have posted on the board at this time a very simple chart. I have not prepared as elaborate charts as some of the other parties here, but I think this one tells its own story.

I would like to point out to the committee what has happened. This is the fold-in chart which appears following page 19, Senator Flanders, in the brief that is before you. It did not reproduce very well, but I think it tells its own story. If you will look to see what the proportions were of total imports among the several jewel categories in 1947, 1950, 1953, and 1955, you will note that in 1947 jeweled watches having 16 or 17 jewels comprise 64 percent; in 1950, 62 percent; in 1953, 63.7 percent; and in 1955, 52.8 percent.

Now if you will look at the 0-1 jewel category, which we are taking as the prime example because these watches, no one will contend, compete with anybody except us, in 1947, they comprised 4.7 percent of all imports or 401,000 0-1 jewel watches. In 1950, it was 15 percent or 1,433,000. In 1953, the year before the tariff increase, it was 20.4

percent or 2,752,000 watches. In 1955, the year after the tariff increase, it was 35.3 percent or 3,865,000 watches.

So it is perfectly clear that there has been a visible shift from the higher jeweled level to the nonjeweled watches, and specifically to the 0-1 jewel bracket.

Now do not let that one jewel confuse you. Ordinarily it is at one end of the balance staff, where it does about as much good as one wing on an airplane. And when you find a great many of these 17-jewel watches that also have pin-lever escapements, they, too, are in our judgment, a misrepresentation to the consuming public as to the quality of the movement contained. They sell for \$10 or \$11, and they compete with us, and we think they do not compete with anybody else.

I was very much interested in this 18-months' analysis—which I think is a complete distortion of the picture and I think the committee will so conclude—which was made by Mr. Cartoun, I believe it was, yesterday. He made the point that import of jeweled watches had gone down 12 percent following the tariff increase in 1954. Well, I had run off a little analysis of what happened in the 0-1 jewel bracket in the same 18 months. And whereas, jewel imports in the 16 -and 17-jewel brackets were down 12 percent, in the comparable 18 months' period to which he referred, imports of 0-1 jeweled watches were up 41 percent.

My point simply is that this industry has caught the brunt of the shift in emphasis on imports from the higher jewel bracket to the lower jewel brackets. These are not Mickey Mouse and character watches, they are watches directed to the pocket and pocketbook of the American consumer. In the first quarter of 1956, 190,000 of them came in in the eight-tenths to nine-tenths inch width. They are ladies' watches. And it is estimated by us and others who are cognizant of the way the import pattern falls during the year, that there will be 2 million such ladies' size watches imported in this market in the 0-1 jewel bracket in 1956.

Now there is not very much more I need to say about that because the committee has asked us to tell them what our competitive position is, vis-a-vis imports of watches and there it is. I have drawn a picture for you on that, plus clocks.

The chief source of imported clocks in Germany, as the chief source of imported watches is Switzerland. The increase in imports of clocks is much greater than were any of the increases in the watch imports following the Swiss agreement of 1936. In both of our situations, there is a threat of imminent extinction of the domestic pin-lever watch and spring-powered clock industry because it is now estimated that as against 3,800,000 0-1 jeweled watches in 1955, there are likely to be well over 6 million in 1956.

In clocks, generally we have found that in every year there has been a 100-percent increase over the prior year, and that arithmetical progression does not have to go very far before it has a telling effect.

Now going very briefly through the second and third points with a sentence or two on each, we have pointed out that there is, I think, very respectable authority among the economists for the proposition that even an older nation with well-established industry may be entitled to grant special protection to those of its defense-essential industries which are threatened with being crippled or being destroyed

by foreign competition. I think there is a notable exception which I have quoted, and had hoped to quote, but will pass up, notwithstanding the temptation at this stage of the game.

I have pointed out to the committee that if this defense essentiality criterion is to be rejected, it will have far-reaching repercussions in our economy. Our whole maritime system is based on that principle. Much of our mining activity is based upon it, and there are other industries in which the Government has taken the position that because of their defense essentiality, they shall be granted special protection in order to preserve them. A finding that that is an improper criterion will have very far-reaching consequences.

On point 3, we have undertaken to deal with the question very briefly.

The very difficult question is—and the skirting of it by other witnesses here is evidence, I am sure, to the committee—is whether you can establish a series of criteria by which you can judge all industry, whether Congress can legislate such criteria, and we have simply taken the position that there is no touchstone, there is no formula or series of formulas which this committee, or Congress, can prescribe for the guidance of administrative agencies seeking to determine this very complex and difficult question.

It has been our recommendation, therefore, that what must be done is to assure that there is sound discretion exercised by the cognizant administrative agency. But it must, indeed, as it goes into these complicated investigations, develop criteria that are made available to it as a result of information supplied by the Defense Department. After all, it is the Defense Department, I am sure, which must determine whether or not the products of a particular industry are of importance.

I want to deal only very briefly and principally, Mr. Chairman, in terms of exhibits, with this question of defense essentiality. I take it this hearing is not designed to preview or predetermine what the ODM is doing with respect to the domestic timepiece industry.

The pin-lever watch and spring-powered clock industry takes a good deal of pride and a great deal of satisfaction in what we call production engineering, a rare combination of the technical skills of labor, the engineering, management, and facilities, all three of which, enter into the production of items which have been discussed here as well as elsewhere.

I will say—and because the bell has rung, I will be extremely brief, that the mechanical time fuze has been kicked around a little bit in the course of this hearing. The fact of the matter is that the mechanical time fuze is such a live issue that there are certain of our companies who maintain, in fact, in what is called standby under powerlines for the production and assembling of parts for the timing elements of mechanical time fuses. And if we were called on, as the clock has struck 12, to put those lines into operation, it would be only a matter of degreasing and putting the people in front of them and pushing the button. That is how close to readiness we are required to be. We have, within 20 feet of some of our existing, ordinary watch production lines, the tools which will fit immediately into the machine tools that we use and could go immediately into the production of parts for these very fuzes.

Of course, the proximity fuze for which we make parts, the electric fuzes for which we make parts, are not going to supersede the me-

chanical time fuze for a variety of reasons. One of them is that they do not store, and another is they can be jammed by the enemy.

I would like to say that any investigation will disclose the key role which this industry has played in production of the mechanical time fuze.

I have a group of parts here which I think will be illustrative. Here is the complete timing device, timing element, for the mechanical time fuze. I have the plates in which we maintain, not the three ten-thousandths of an inch tolerance referred to by one of the witnesses this morning, but a somewhat closer tolerance on the plates which we produce. I would simply call the attention of the committee to the close similarity between the plates and parts which have gone into the mechanical time fuze and plates and parts which make up this somewhat battered watch movement, which we have used as exhibits in other instances.

I would like to point out, too, that there are some products which we have engineered on a research and development basis. This is not the one I am about to speak of. There is one produced by Gilbert, one of the smaller producers of clocks in the industry. I believe it is the sole source of that item which is so highly classified I cannot even describe it except to tell you that it is a part of the atomic-bomb program. The one I hold in my hands, which I will pass for the committee's examination, is a special fuze which has been developed on a research and development basis, and it is a fantastic device because it represents the timing element which can be set, armed or disarmed, if you please, by the pilot from the cockpit of a bomber. It can be set so that it avoids premature explosion. It is one of the most elaborate and delicate and complex mechanisms which has ever been put together in the fuze field.

Representative BOLLING. Mr. Reeves, if you can conclude fairly soon, we are running very short of time.

Mr. REEVES. May I conclude in 1 minute, sir?

Representative BOLLING. Certainly.

Mr. REEVES. Finally, there has been developed by United States Time Corp. a device which is probably as exciting to the guided missile people and others as any which has ever been placed in production. This is a miniature gyroscope. It is sometimes put together in banks of as many as 8 or 12. It has not been produced, Mr. Chairman, by anybody else in the United States, not even the gyroscope companies, and I am at liberty to tell you, without identifying them by name, that the gyroscope companies have come to the United States Time Corp. for their requirements for this particular gyroscope.

I had exploded models of it prepared, one of which I submit for your inspection, and another, somewhat less exploded. I am speaking now not of violent explosion, of course, but the layout of the parts.

When you speak of miniaturization, which is what you are talking of there, this industry is practically the granddaddy of the miniaturization business, as was the case in the miniaturization of a clock movement. So that the watches we make are properly called clock-type watches.

There are in this fractional ounce bottle which I have in my hand 120,000 of the pallet pins which we use. If they were to be spread around the table, it would be a little difficult for you to find all of them.

There are 750 filler plugs in this capsule-size bottle, Mr. Chairman.

And here in this tiny container there are 100 of the hairsprings which are produced and used by this industry. I would say that a good test would be to take the hairspring material and drop one of them on the floor and then try to find it.

I have a number of other exhibits which we will be glad to leave with the committee evidencing the high degree of miniaturization which this industry has achieved.

From the standpoint of its essentiality to national defense, I think we have given you in these few examples a fair sampling which will indicate the degree of the industry's essentiality.

I believe that on behalf of the industry I can say that we consider that essentiality is a matter of national policy, and, indeed, it should be dominant so far as principles governing our foreign economic policy are concerned, and that when the chips are down and tests are made, whatever those tests may be, the pin-lever watch and clock industry will be found to be among the highest of the industries essential to national defense.

Thank you very much, Mr. Chairman and gentlemen of the committee.

Representative BOLLING. Thank you very much, Mr. Reeves.

(Mr. Reeves' full statement is as follows:)

THE PROBLEMS OF THE WATCH AND CLOCK INDUSTRY RELATED TO DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

STATEMENT ON BEHALF OF DOMESTIC PRODUCERS OF PIN-LEVER WATCHES AND SPRING-POWERED CLOCKS BY CLOCK AND WATCH MANUFACTURERS ASSOCIATION OF AMERICA, INC., NEW HAVEN, CONN.

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 - A. The present competitive position of the domestic pin-lever watch industry in relation to imports.
 - B. The present competitive position of the domestic spring-powered clock industry in relation to imports.
 - Problems of the domestic pin-level watch and spring-powered clock industry related to foreign economic policy.
- II. Justification for invoking defense essentiality as a reason for protecting a domestic industry from destruction or impairment by increased imports.
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THE PROBLEMS OF THE WATCH AND CLOCK INDUSTRY RELATED
 TO DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

STATEMENT ON BEHALF OF DOMESTIC PRODUCERS OF PIN-LEVER WATCHES AND
 SPRING-POWERED CLOCKS

This appearance is made pursuant to the invitation of the chairman of the Subcommittee on Foreign Economic Policy addressed to the president of Clock & Watch Manufacturers Association of America, Inc., a trade association which includes in its membership domestic manufacturers of pin-lever watches and spring-powered clocks. The views herein expressed are submitted on behalf of the following domestic producers:

Chelsea Clock Co.	New Haven Clock & Watch Co.
General Time Corp.	Sessions Clock Co.
The William L. Gilbert Clock Corp.	Seth Thomas division, General Time Corp.
Herschede Hall Clock Co.	
The E. Ingraham Co.	The United States Time Corp.
Lux Clock Manufacturing Co.	Westclox division, General Time Corp.

Three of these companies—the E. Ingraham Co., the United States Time Corp., and Westclox division of General Time Corp.—are volume producers of pin-lever wrist and pocket watches. A fourth company—New Haven Clock & Watch Co.—has also been active in this field of manufacture.

All of the manufacturers listed are producers of spring-powered clocks, timing devices, and other horological products. All have made important contributions to defense production in times of industrial mobilization.

We have combined pin-lever watches and spring-powered clocks for purposes of this testimony for two reasons. The first is that these two products are both escapement-type movements, similar in principle and function to jeweled watch movements and closely related also to escapement-type timing mechanisms required in mechanical time fuzes and other military items. A pin-lever watch is actually the miniaturization of a clock—originally engineered in the Ingersoll watch “that made the dollar famous”—and these watches have often been correctly described as “clock-type” watches.

The second reason for considering domestic pin-lever watches and spring-powered clocks together is that these are the same items which are imported in such greatly increasing quantities as to jeopardize domestic producers.

From the subcommittee's announcement it appears that the purpose of this proceeding is a critical examination of the “defense essentiality” criterion established by section 7 of the Trade Agreements Extension Act of 1955 (Public Law 86, 84th Cong., 1st sess.) and its administration. This section provides that:

“* * * whenever the Director of the Office of Defense Mobilization has reason to believe that any article is being imported into the United States in such quantities as to threaten to impair the national security, he shall so advise the President, and if the President agrees that there is reason for such belief, the President shall cause an immediate investigation to be made to determine the facts. If, on the basis of such investigation, and the report to him of the findings and recommendations made in connection therewith, the President finds that the article is being imported into the United States in such quantities as to threaten to impair the national security, he shall take such action as he deems necessary to adjust the imports of such article to a level that will not threaten to impair the national security.”

The first study initiated by the Office of Defense Mobilization under this statutory authority was of the domestic watch and clock industry. It is for

this reason, presumably, that the subcommittee has selected the same industry as a case in point against which to consider the justification for resort to the defense essentiality criterion and, in general, the proper administration of that criterion where enlargement of foreign trade and reduced protection of domestic industries are the primary objectives. Of some significance is the fact that this subcommittee's study comes before any findings have been made or any action taken under section 7 of the act with respect to the watch and clock industry or any other industry.

Relationship of pin-lever watch and spring-powered clock industry to these hearings.— In our opinion the pin-lever watch and spring-powered clock industry has been improperly relegated to a subordinate position in the subcommittee's study. The focus of these hearings is obviously directed toward the watch industry in general and the jeweled-watch industry in particular. Of the 6 witnesses scheduled to appear on behalf of domestic producers, 5—including the representative of the domestic jeweled-watch workers union—speak for the domestic jeweled-watch industry. Only one witness has been scheduled to appear for all domestic producers of pin-lever watches and spring-powered clocks. A witness has been scheduled for each domestic manufacturer of jeweled watches, but the views of the entire pin-lever watch and clock industry are requested from a single witness. The difficulties of a complete and adequate presentation of the latter industry's position in these circumstances are manifest.

The situation reflects an incorrect perspective of the American horological industry. The pin-lever watch and spring-powered clock industry is not merely an appendage, or a minor segment, of the domestic timepiece industry. On the contrary it constitutes 1 of the 2 major divisions of the horological industry, domestic jeweled-watch manufacturers constituting the other division.

In evaluating this industry's role in the national economy, whether in peace or in war, it should be noted that domestic manufacturers of pin-lever watches and spring-powered clocks consistently supply and serve a greater proportion of the population of the United States than do all of the domestic jeweled-watch producers and all of the importers of watches and clocks combined. In 1955, for example, domestic jeweled-watch production and imports of all watches and clocks approximated 14.9 million units, as follows:

Domestic jeweled watches (estimated)-----	2, 000, 000
All imported watches (par. 367)-----	10, 853, 000
All imported clocks (par. 368)-----	2, 052, 000
Total -----	14, 905, 000

As against this total of 14.9 million units, domestic sales of pin-lever pocket and wrist watches and spring-powered clocks in 1955 totaled over 16.7 million units. This figure does not include the great number of timing devices and special-purpose clocks produced by this industry and which directly affect the daily lives of large segments of our population.

In terms of volume of sales of timepieces and of service to the consuming public, the domestic pin-lever watch and spring-powered-clock industry clearly occupies the predominant role among suppliers of timepieces to the American market. Little of this industry's output is in the luxury class. The watches and spring powered clocks which it produces are almost all strictly utilitarian, modernly styled but modestly priced to meet the needs of low- and moderate-income consumers.

As will presently appear, this industry's role in industrial mobilization for national defense is no less significant. Assistant Secretary of Defense Thomas P. Pike attested to this fact when he told the Senate Subcommittee on Preparedness on June 30, 1954:

"In general from the standpoint of the Department of Defense, and speaking strictly to the national security, the national defense angle of this problem, I can wholeheartedly concur in the general conclusions reached by Dr. Flemming in regard to the entire horological industry. And by that I mean not only the jeweled-watch industry but, in addition thereto, the nonjeweled-watch industry, and the clockmaking industry.

"There is no question but that the skills involved in these several industries, constituting in its entirety what we call the horological industry, are vitally essential to our national defense in the event of mobilization. As your committee knows, the Department of Defense has submitted a report to Dr. Flemming, as one member of his interdepartmental committee, in which we addressed ourselves only to the jeweled-watch segment of this total horological industry.

"However, the total job done in our report constituted a very searching and careful inquiry into our 3-year mobilization requirements for watches, clocks, timepieces of various descriptions, in addition to the fuzes, timing devices, et cetera, that are made by the companies engaged in the manufacture of jeweled watches and the other members of the horological industry.

"And, so, generally, as I say, our conclusion is that this entire industry is extremely important—is vital, I would say—to the national defense of this country." (Hearings before Preparedness Subcommittee No. 6 of the Committee on Armed Services, U. S. Senate, 83d Cong., June 30, 1954, p. 40.)

In its present scope, therefore, the subcommittee hearings and study can result in only an imperfect and somewhat distorted picture of the problems of the timepiece industry related to defense and foreign economic policy. A study of the watch industry alone—as the subcommittee has recognized—would be equally deficient in this respect. In the single statement and appearance allowed the pin-lever watch and spring-powered clock industry it is not possible to present all of the directly pertinent considerations which bear upon the important subject before your subcommittee.

Scope of this statement.—Generally, we understand that the subcommittee's primary interest is in the defense essentially criterion as one guide to the degree of protection, if any, to be provided to domestic industries injured, or threatened with injury, by imports. To the extent that the experience of the domestic-watch and spring-powered-clock industry is considered as a case history, it is indispensable that information be developed as to the competitive position of domestic producers as affected by tariff cuts, escape-clause action, and other factors. From the subcommittee's release it seems clear that in this proceeding it is intended to question the justification for resort to the defense essentiality criterion, consistent with the criticism of existing tariff levels and escape-clause administration which appeared in the report of January 5, 1956.

Accordingly, in this statement we shall discuss (1) the present competitive position of the domestic pin-lever watch and spring-powered-clock industry in relation to imports, (2) the justification for invoking defense essentiality as a reason for protecting a domestic industry from destruction or impairment by increased imports, (3) the question as to whether specific criteria can be developed to regulate the administration of section 7 of the Trade Agreements Extension Act of 1955 and the finding of defense essentiality with respect to domestic industries in general, and (4) the defense essentiality of the pin-lever watch and spring-powered-clock industry.

I. THE PRESENT COMPETITIVE POSITION OF THE DOMESTIC PIN-LEVER WATCH AND SPRING-POWERED CLOCK INDUSTRY IN RELATION TO IMPORTS

For a clear understanding of the current problems of this industry it is necessary to review the effects of tariff reductions and, in the case of pin-lever watches, the effects of the 1954 escape clause action. Because watches and clocks are generally dutiable under different paragraphs of the Tariff Act and have been affected by entirely different trade agreement concessions made effective at different dates, we shall treat them separately in this discussion.

(a) *The present competitive position of the domestic pin-lever watch industry in relation to imports*

Imported watch movements, dutiable under paragraph 367 of the Tariff Act, are subject to specific duties based generally on jewel count and the width of the movement. All but two of these duties were reduced, by an average approximating 40 percent, in the 1936 Trade Agreement with Switzerland. The two exceptions were (1) movements having more than 17 jewels, as to which the specific duty of \$10.75 was continued unchanged, but bound against increase, by the Swiss agreement, and (2) movements having no jewels or only one jewel, and being more than 1.5 inches wide, as to which the specific duty of 75 cents was also continued unchanged, but bound against increase, by the Swiss agreement.

Imported watches in the 0-1 jewel classification are of special concern to the domestic pin-lever watch industry because they are necessarily of pin-lever design and are extraordinarily low priced. These, however, are not the sole source of import competition to domestic pin-lever watch manufacturers. Samplings of imports have disclosed that most of the movements in the 2-7 jewel category, and a large number of 17-jewel movements, are also of pin-lever design and sell at lower retail prices than many domestic pin-lever, nonjeweled watches. In addition, a great many imported 17-jewel watches with jeweled escapements are

priced to sell at retail for \$16 or less, and compete directly with domestic pin-lever watches on a price basis.

As will presently appear, a majority of all watches imported into the United States compete directly, and perhaps exclusively, with domestic pin-lever watches. In the interest of simplicity, we confine this testimony principally to the 0-1 jewel import classification.

The subcommittee may be interested in the rates of duty applicable to imported watches in the 0-1 jewel category, and these are shown as fixed by the 1930 act, as reduced by the 1936 agreement with Switzerland, and as changed by the 1954 escape-clause decision.

TABLE I.—United States rates of duty on 0-1 jewel watches dutiable under par. 367 (a), *Tariff Act of 1930*

	1930	1936	1954 to date
Over 1.5 inches wide.....	\$0. 75	\$0. 75	\$0. 75
1.2 to 1.5 inches wide.....	. 84	. 75	. 84
1.0 to 1.2 inches wide.....	. 93	. 75	. 93
0.9 to 1.0 inches wide.....	1. 05	. 75	1. 05
0.8 to 0.9 inches wide.....	1. 20	. 75	1. 12½
0.6 to 0.8 inches wide.....	1. 35	. 75	1. 12½
0.6 inches or less wide.....	1. 50	. 90	1. 35

While the 1936 reductions in duties gave immediate stimulus to imports of Swiss watches, it was with the entry of the United States into World War II—when the domestic pin-lever watch industry was fully committed to defense production and the reduced domestic output of jeweled watches was earmarked for military use—that Swiss imports became overwhelmingly dominant in the United States market. This development is very clearly revealed by the following chart covering the 19-year period from 1935 through 1953. With respect to domestic pin-lever watches this chart relates to wrist watches only; pocket watches will be added in a subsequent section.

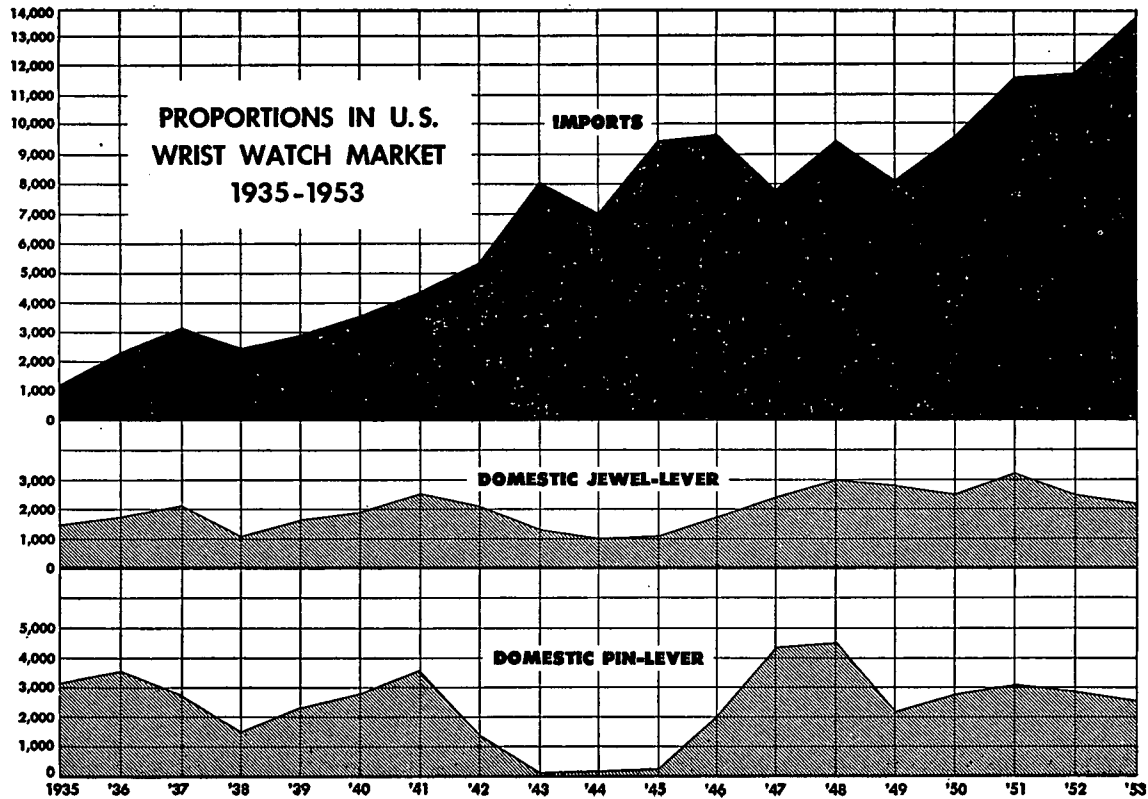
It will be noted that following the close of World War II, except for the years 1947 and 1948 when accumulated wartime shortages were being satisfied, domestic producers were unable to regain their position in the domestic market and Swiss imports, already overwhelmingly dominant, continued to increase in volume of sales and in proportion of the market which they controlled. Increases in imports were spectacular in 1950, 1951, 1952, and 1953, rising from 8,099,000 in 1949 to a record high of 13,367,000 imported watches in 1953. This sudden saturation of the United States market brought the entire domestic watch industry into serious peril, and in 1954 its effects were felt in both reduced imports and reduced domestic sales for the 6 months prior to the President's escape clause action on July 27.

The question was, what caused this tremendous surge of Swiss watches into the American market? In the domestic pin-lever watch industry we undertook to find out.

Our investigation revealed the reason, which we documented for the Tariff Commission in the 1954 proceeding and document again for this subcommittee.

It is established beyond any question that the great influx of Swiss watches into this market subsequent to the war was the direct and immediate result of the embargo against imported watches which the United Kingdom put into effect on a progressive scale in 1945. This embargo was initiated, incidentally, as a national security measure because of the admitted essentiality of the watch and clock industry to defense production.

Speaking in the House of Commons of the British Parliament on October 16, 1945—scarcely a month after the Japanese capitulation—Sir Stafford Cripps, then president of the Board of Trade, explained in detail why England felt compelled to adopt, as the first step, "quantitative restriction of imports of clocks and watches" as well as increased tariffs and other measures to protect and encourage the domestic timepiece industry. Excerpts from these proceedings have been quoted by the American pin-lever watch and clock industry in other instances, but we regard the matter as of such current significance that we reproduce at this point the cover and pertinent pages from the official report of proceedings in the House of Commons on the date in question:



CLOCK MANUFACTURERS ASSOCIATION OF AMERICA

EXHIBIT B

[Vol. 414, No. 17, Tuesday, 16th Oct., 1945]

PARLIAMENTARY DEBATES

(HANSARD)

HOUSE OF COMMONS

OFFICIAL REPORT

CONTENTS

Monday, 15th October, 1945

[Continuation of Proceedings]

SUPPLIES AND SERVICES (TRANSITIONAL POWERS) BILL:

Considered in Committee (Clauses 7-9, New Clause and Schedules).

COATBRIDGE AND SPRINGBURN ELECTIONS (VALIDATION) BILL:

Considered in Committee; reported, without Amendment; read the Third time, and passed.

Tuesday, 16th October, 1945

QUESTIONS TO MINISTERS:

Demobilisation (Royal Air Force) [Col. 895.]

ARMY OFFICERS (RELEASE SCHEME, MODIFICATION):

Mr. J. J. Lawson's Statement [Col. 924.]

SUPPLY:

Considered in Committee:

Supplementary Vote of Credit, 1945:

Civil Estimates, Supplementary Estimate, 1945.

LONDON

HIS MAJESTY'S STATIONERY OFFICE

Price Sixpence

CLASS VI. BOARD OF TRADE

Motion made, and Question proposed,

"That a Supplementary sum, not exceeding £200,000, be granted to His Majesty, to defray the charge which will come in course of payment during the year ending on the 31st day of March, 1946, for the salaries and expenses of the office of the Committee of Privy Council for Trade, and subordinate departments, including assistance to the watch manufacturing industry in Great Britain and a grant in aid."

THE PRESIDENT OF THE BOARD OF TRADE (Sir Stafford Cripps). This is a new matter, and perhaps I may be allowed to give a short explanation of it to the Committee. Before the war, the Committee will appreciate that, though this country manufactured a certain number of high-grade clocks, practically the whole of our requirements, as regards the ordinary clock and watch trade, were imported from abroad. Over 7,000,000 watch movements and about 5,000,000 clock movements were imported into this country annually, and, when the war came and we needed, naturally, to mobilise all the engineering resources we could muster, the inadequacy of the clock and watch industry left a very serious gap in what may be termed our industrial armoury. The Services required a great number of clockwork fuses, as well as clocks and watches.

By the time the peak production had been reached during the war, we were able, broadly speaking, to provide the first two of these—clockwork fuses and clocks—in adequate quantities, but we have only recently reached the production stages for watches, and that only on a comparatively small scale. Consequently, we had, even in the war, to import our requirements of these, and also of an item which a good many hon. Members will remember from their correspondence—alarm clocks, which were one of the essential civilian needs. If we had had a considerable watch and clock industry earlier, not only should we have avoided the risks which are inseparable in such circumstances from dependence on overseas sources, but we should have had a reservoir from which we should have drawn machine tools, skilled labour and management well suited to the

manufacture of many of those precision instruments upon which war so much depends to-day.

The civilian population has, of course, during the war, been kept extremely short of both watches and clocks, and the knowledge that we were bound to continue a tight control over imports for a considerable time until we could see our way through the difficult problem of the balance of payments provided a second reason for considering the steps necessary to encourage the large-scale production of watches and clocks in this country itself. Accordingly, the Coalition Government invited me, when I was at the Ministry of Aircraft Production, to examine this problem with the other Ministers concerned and with the industry, and my hon. Friend the Member for Mid-Bedfordshire (Mr. Lennox-Boyd), then Parliamentary Secretary to the Ministry of Aircraft Production, did a very excellent piece of work in conducting the whole inquiry for me, and the conclusions reached by that inquiry were endorsed by myself and the President of the Board of Trade and approved by the Government last May. The present Government is in full agreement with those conclusions. Although this Committee is concerned to-day with only one of the measures which were proposed, I think it may be of assistance if I were to take this opportunity of stating briefly the other main conclusions that were reached.

First, in view of the balance of payments difficulties, to which I have already referred, quantitative restriction of imports of clocks and watches is bound to continue for some time at least, but, in deciding what imports we must licence, we shall, of course, have regard to the quantity of home-produced clocks and watches. The industry has been informed of this fact, and it is hoped it will take this opportunity of putting itself on a fully efficient basis to supply our own needs and also, we hope, to make a contribution towards our exports. Secondly, import duties on alarms and other cheap clocks were reduced to 20 per cent. and 25 per cent. *ad valorem* respectively to implement the Anglo-German Agreement of 1933, and the last Government agreed to bring these again into line with the duties of other clocks and watches, namely, 33½ per cent. *ad valorem*, and a Treasury Order to that effect was made in July last. Thirdly, the Government will place orders for clocks and watches for the Services with British producers to the fullest extent practicable, always having regard to the fact that the Services must have the best equipment and that we must have it at a reasonable price. Fourthly, in order to build up a body of highly trained technicians, the provision of facilities for technical education is essential. My right hon. Friend the Minister of Education has decided that a National College for Clock and Watch Manufacture is needed, and she is taking steps to get this established in the near future.

These measures should enable us to build up an efficient industry so far as clocks are concerned. It is clear, however, from all the advice we have been able to secure, from our own war-time experience in production and a detailed cost investigation, that more will be needed if we are to establish ourselves firmly in the watch manufacturing field. Some firms, it may be, will be able to go ahead without further assistance than that I have already described, and we shall do all we can to make their projects a success. We are satisfied, however, that the hazards and difficulties are such that development of what amounts to substantially a new industry upon a sufficiently large scale will be unlikely without that degree of Government support, encouragement and supervision which can only be secured by some participation by the Government in the risk.

Accordingly, it is proposed that the Government should acquire and lease on easy rental terms the essential plant for a limited number of selected manufacturing projects. Pending the submission of these proposals to Parliament, those who it was thought might make a contribution to the problem were invited by the Ministry of Aircraft Production to discuss possible arrangements. Some proposals have already been submitted and others are expected to be submitted shortly, but, to enable assistance to be given immediately to the projects selected, this Supplementary Estimate is presented in advance of such legislation as may ultimately prove to be necessary.

The broad outlines of the scheme are that essential plant will be leased to the selected firms for five years at a rental of 4 per cent. per annum on the initial value of the plant, and the firms will be given the option to purchase the plant at the end of the term at the then fair market price. In other words, the firms will have been relieved of depreciation for the duration of the lease. As a condition of this assistance, the firms will be required to make full use of the plant; to undertake research and development and take all possible steps to reduce

their costs, so that British watches may become, as rapidly as possible, as competitive as those made elsewhere. The forecast of £1,000,000 mentioned in the Supplementary Estimate as the total of plant to be provided is the amount which we think will be needed to start an industry basically sound and capable ultimately of meeting a large part of our demand for watches. Some part of the plant will come from Government surpluses. If we assume a rate of 15 per cent. for depreciation per annum on the initial value, the assistance to the industry over the five year period will amount to 75 per cent. of the value of the plant provided, and that will probably be somewhere between 5 and 10 per cent. of the total cost of production during that period.

If we can so establish an efficient watch-manufacturing industry at so small a cost, I am sure the Committee will agree that the money will be well spent. It is to be observed that some of these projects are being placed in the development areas, and also, in one case, it is contemplated that a factory, where certain types of watches have been manufactured during the war, will come into use. I trust that, with that short explanation, the Committee will agree to the Estimate. 7.0 p. m.

Mr. LENNOX-BOYD (Mid-Bedford). Whilst thanking the right hon. and learned Gentleman for his kind reference to myself, I would like to say how deeply this House and this country will be indebted to those officials of the Ministry of Aircraft Production who, at the height of the aircraft programme, in one of the worst periods of the war, gave such unstinting service in carrying out the inquiry on which this Estimate is based. I think it will turn out to be a very important day in the history of British industry, and that from these small beginnings something very valuable to our life and trade may well spring. As the right hon. and learned Gentleman said, we shall have the beginning of a very valuable industry here—the clock and watch industry. We shall be able to cut down imports at a time when it is imperative to do so. We shall be able to keep skilled labour in that field of high precision engineering in which we are unequalled, and we shall also be able to keep up to date in a vital field of defence and be able, should the need ever arise, to expand rapidly. I am glad on behalf of the Opposition to wish this venture every possible good fortune. The high precision firms to which we shall have to look in the future have in the war, by their hard work, their ingenuity and their courage under enemy attack, given us a very rich harvest of engineering achievement.

I am glad that the Government have realised the value of these private firms and the need and the propriety of giving them assistance in the difficult teething period of tooling-up on an expensive and elaborate scale for goods which in the early stages are bound to yield only an unremunerative return. I believe that given the good will and support which all sides of the House will be anxious to give, we shall draw from these firms in peace-time dividends as rich and valuable as they have given us in war.

Mr. GODFREY NICHOLSON, I hope the right hon. and learned Gentleman will bear in mind not only the big firms but the smaller ones. Some of the finest craftsmanship in the watch-making industry exists in very small firms employing perhaps four, five, six or seven men. I could show him cases in London in the Clerkenwell area where firms like that have rendered eminently valuable service to the country during the war, having been engaged on Admiralty and other contracts. They show that they possess as high a level of craftsmanship as could be found anywhere else, and it would be a thousand pities if this admirable venture, on which I congratulate all concerned, ignored these small firms.

Question put, and agreed to.

Resolved:

“That a Supplementary sum, not exceeding £200,000, be granted to His Majesty to defray the charge which will come in course of payment during the year ending on the 31st day of March, 1946, for the salaries and expenses of the office of the Committee of Privy Council for Trade, and subordinate departments, including assistance to the watch manufacturing industry in Great Britain and a grant in aid.”

(End of quote.)

The effect of England's embargo against Swiss watches was dramatically effective. As shown by official Swiss statistics supplied to the United States Department of Commerce, while the United Kingdom imported 7,533,000 Swiss watches in the prewar year 1937, by 1947 such imports had dropped to 2,050,000 and by 1953 to 1,543,000. This was a reduction of almost exactly 6 million in England's import of Swiss watches in the prewar-postwar interval. In the same period United States imports of Swiss watches increased by an even greater quantity—by over 10 million watches. A part of this increase may be

attributed to the fact that Switzerland's export of watches jumped from 24 million in 1950 to over 33 million in 1951 and have increased even further in the last 2 years.¹ Comparative figures tell the story very clearly.

TABLE II.—*Volume of exports of Swiss watches to United Kingdom and United States, years 1937 and 1947-53*

[Official Swiss statistics]

	United Kingdom	United States		United Kingdom	United States
1937.....	7,533,000	3,462,000	1950.....	1,199,000	8,939,000
1947.....	2,050,000	7,555,000	1951.....	1,384,000	11,477,000
1948.....	1,770,000	8,179,000	1952.....	1,554,000	12,487,000
1949.....	1,681,000	7,505,000	1953.....	1,543,000	13,517,000

What happened to the 6 million Swiss watches per year which the United Kingdom excluded by embargo? They were unloaded on the United States market with resultant demoralization of the domestic watch industry. In effect, United States tariff policy guaranteed Switzerland a market for all Swiss watches embargoed by the British—we insured the Swiss watch industry against the British quota restrictions, at the expense of the domestic watch industry.

This situation is even more vividly portrayed by an analysis of the changing proportions of total Swiss watch exports which the United Kingdom and the United States, respectively, received as imports. In the chart which follows we have shown, for the years 1937, 1947, 1950, and 1953, the distribution of Swiss watch exports, by percentages, to the United Kingdom, the United States, and other world markets. It should be remembered that each bar represents 100 percent of Swiss watch exports, and not numbers of watches; this is important because the 1950 bar represents 24 million exported watches while the 1953 bar represents 33 million.

Between 1937 and 1953, the United Kingdom's share of Swiss watch exports dropped from 31.5 percent to 4.7 percent. Between the same years the United States share of Swiss watch exports increased from 14.5 percent to 40.9 percent.

The London Economist, in its November 19, 1955, issue, reported with satisfaction the effectiveness of Britain's measures to revive her timepiece industry. It said (p. 674):

"Although the exhibition that clock and watchmakers held at the Goldsmith's Hall last month bore the title 'Five Centuries of British Timekeeping,' exhibitors were more concerned to render an interim account of what they had done with the substantial measure of Government aid and protection granted 10 years ago for the resuscitation of their twin industries. The direct aid consisted of £1 million spent to build factories and buy special plants to be rented to the watchmakers, and to found a horological college to train technicians for both industries. The existing duty of 33½ percent on watches was reinforced by tight quotas on imports; and the 20 percent duty on clocks raised to 33½ percent (25 percent on alarm clocks) with quotas for all except electric clocks.

* * * * *

"It will take more than 10 years to regain the lead that Swiss and German firms seized 50 years ago."

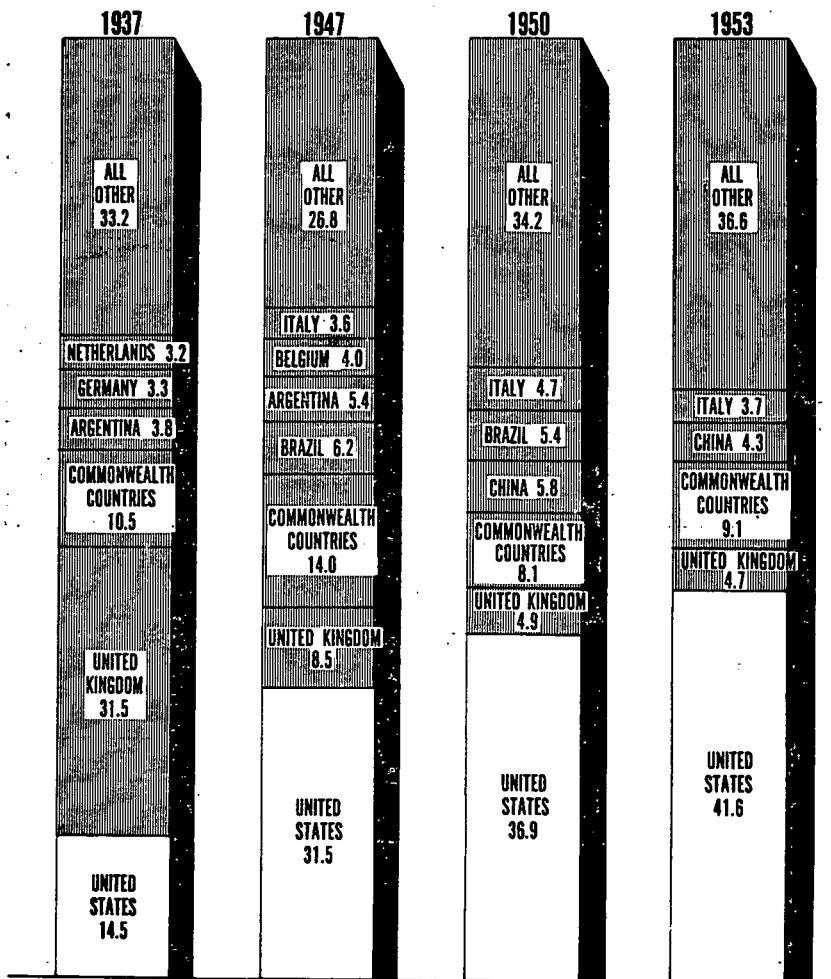
Only three conclusions can be drawn from the foregoing. The British embargo on watches was effective. The United States tariff on watches was ineffective. The United States market therefore received the millions of Swiss watches which England shut out by quantitative restrictions. It cannot be argued that any such result was intended or contemplated by the Trade Agreements Act of 1944 or by the 1936 agreement with Switzerland.

If the subcommittee will give these data the consideration we think they deserve, it will be abundantly clear that the watch tariff case is not typical of the normal functioning of the trade agreements program or of the escape clause. In these unusual and unanticipated circumstances resort to the escape clause in the Swiss agreement was not only justified, but mandatory.

Viewed in this light, we believe that neither the domestic watch industry, nor the escape-clause action in 1954, nor the role of the industry in the national

¹ Swiss figures differ slightly from official United States statistics.

**PRINCIPAL COUNTRIES OF DESTINATION
OF SWISS WATCH EXPORTS
PERCENT OF TOTAL**



security, presents a case-in-point appropriate for the study undertaken by the subcommittee.

It may be said categorically that the escape-clause action of July 27, 1954, did not benefit the domestic pin-lever watch industry or relieve in any degree the import competition against it. The contrary is true. Since 1954 imports of pin-lever watches, especially in the 0 to 1 jewel classification, have increased tremendously and in the first quarter of 1956 indicate that oversaturation of the domestic pin-lever watch market is imminent.

We have already pointed out that all imported 0 to 1 and 2 to 7 jewel watches, all imported 8 to 15 jewel watches and a great proportion of the low-priced imported 17 jewel watches compete directly, and probably exclusively, with domestic pin-lever watches. For illustration, however, we shall make our prin-

cipal comparisons with the volume of imports of 0 to 1 jewel watches which cannot be said to compete with domestic jeweled watches.

The 8-percent decline in imports of 0 to 1 jewel watches between 1953 and 1954 is only partly attributable to the escape-clause action of July 27, 1954. Part of the decline had occurred in the first half of 1954, prior to the announcement of the escape-clause decision, as the result of saturated market conditions following record imports in 1953.

In 1955, notwithstanding the escape-clause action in 1954, imports of 0 to 1 jewel watches increased more than 40 percent over the record year 1953—from 2,751,000 watches in 1953 to 3,865,000 watches in 1955. The chart which follows shows graphically the increase in such imports as compared with sales of domestic pin-lever wrist and pocket watches.

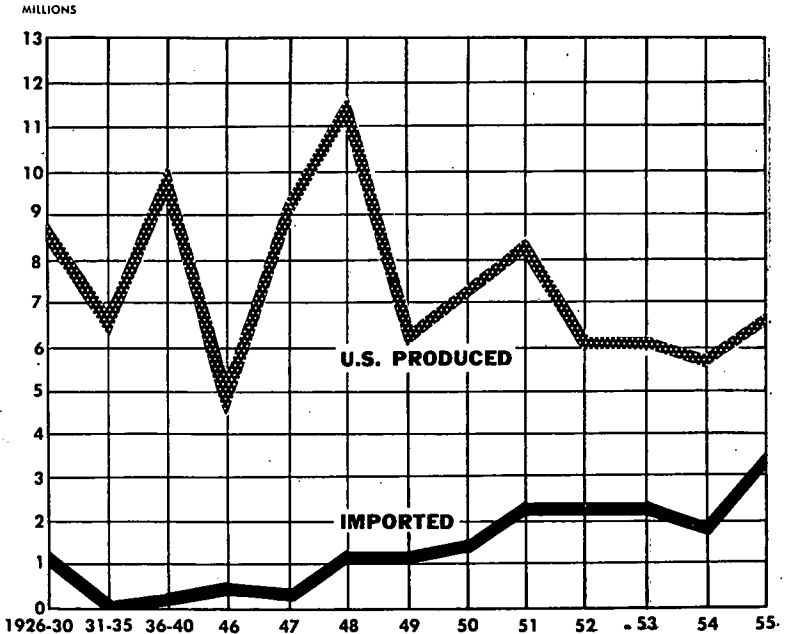
Even more significant is the proportion of imported 0 to 1 jewel watches to total watch imports. A pronounced shift in the import pattern has occurred, with greatly increased emphasis on the 0 to 1 jewel bracket. Whereas in the record year 1953, 0 to 1 jewel watches constituted 20.6 percent of all watch imports, this percentage rose to 24.1 percent in 1954 and 35.6 percent in 1955. The proportion is still rising. For 1953-55 this situation is presented in two tables, the first expressed in quantities, the second in percentages.

TABLE III.—Watch imports (par. 367)

Jewels	1953	1954	1955	Percent changes, 1955 and 1954
0 to 1.....	2,751,623	2,531,641	3,865,657	+52.7
2 to 7.....	1,844,804	1,533,751	1,249,634	-18.5
8 to 15.....	329,172	190,147	122,115	-35.8
16 to 17.....	8,431,925	6,216,602	5,598,821	-9.9
Over 17.....	9,617	13,261	17,169	+29.4
Total.....	13,367,141	10,485,402	10,853,396	+3.5

O-1 JEWEL WATCHES

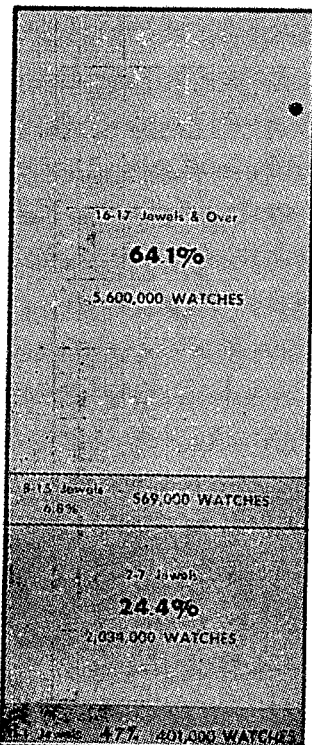
U.S. Sales Figures



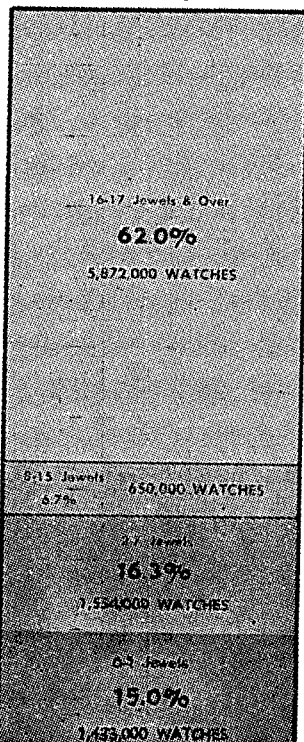
IMPORTED WATCHES

Shares of U.S. Market by Jewel Count

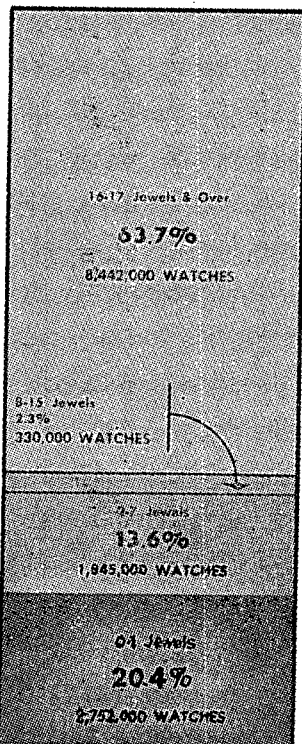
1947



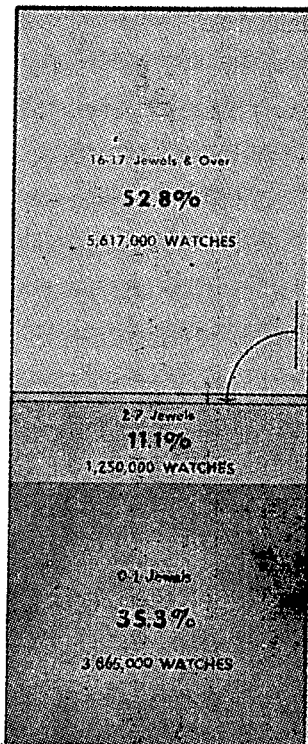
1950



1953



1955



8-15 Jewels
1%
122,000 WATCHES

0-1 Jewels
47.4%
5,237,000
WATCHES

SOURCE: U.S. DEPT. OF COMMERCE

CLOCK & WATCH MANUFACTURERS ASSOCIATION OF AMERICA, INC.

TABLE IV.—*Watch imports (par. 367)*

[Percentage of total in each jewel class]

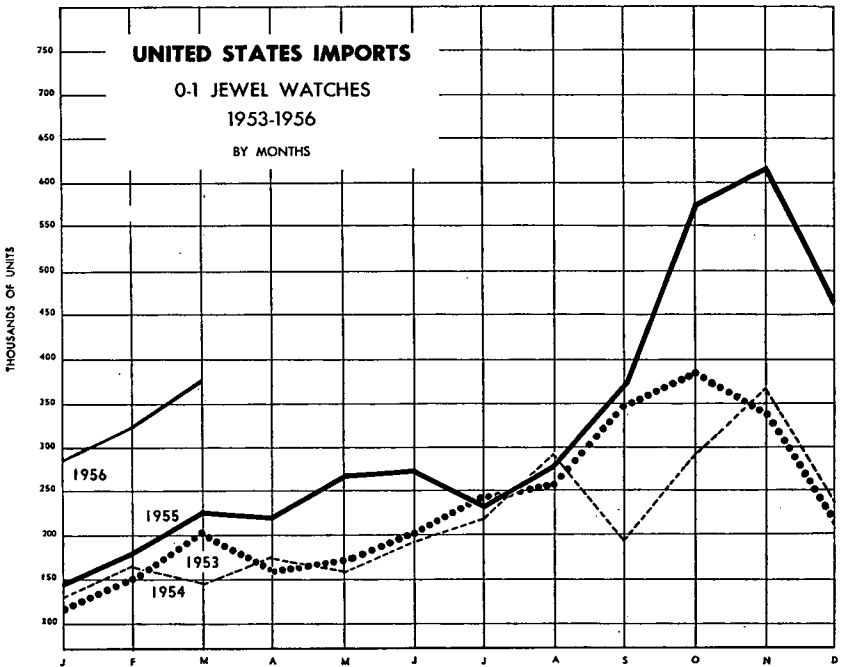
Jewels	Year 1953	Year 1954	Year 1955
0 to 1.....	20.6	24.1	35.6
2 to 7.....	13.8	14.6	11.5
8 to 15.....	2.5	1.8	1.1
16 to 17.....	63.0	59.3	51.6
Over 17.....	0.1	0.2	0.2
Total.....	100.0	100.0	100.0

The tremendous increase in the proportion which imported 0 to 1 jewel watches bear to total watch imports is vividly shown in the bar chart which follows.

The trend of imports of 0 to 1 jewel watches continued to rise, and even more sharply, in the first quarter of 1956. This increase appears from the following chart, on which imports are shown by months, for the years 1953, 1954, and 1955, and for the first quarter of 1956. A projection of 0 to 1 jewel watch imports for the full year 1956, based on the experience of prior years, indicates that imports in this category alone will well exceed 6 million for the year. We believe that this estimate would be confirmed by the cognizant Government departments. The trend seriously and immediately imperils the domestic pin-lever watch industry. It should settle one point for the subcommittee—the 1954 escape-clause action increased, and did not diminish, the United States market for imported 0 to 1 jewel watches.

The foregoing data depicts, in general, the present competitive position of the domestic pin-lever watch industry in relation to imports. Domestic producers are confronted with the sudden loss of most or all of the remaining market for pin-lever watches. It is not difficult to identify the cause.

Three factors place domestic manufacturers of pin-lever watches at an acute disadvantage in competition with foreign producers. All relate to labor costs,



Clock and Watch Manufacturers Association of America, Inc.

but in a peculiarly aggravated degree: 80 percent to 85 percent of the total manufacturing cost of a pin-lever watch is labor cost. A great disparity exists between the wage rates paid in the American watch industry and those paid by Swiss producers. The productivity of American and Swiss labor is the same.

With these three factors combined, the existing tariff rates, reduced in amount by the 1936 agreement and in effect by increased costs and selling prices, afford no protection to domestic producers.

The subcommittee will undoubtedly take note of the fact that the 1954 escape-clause action did not reduce the United States market for Swiss pin-lever watches. Domestic producers, keenly aware of the sharply-increased imports since 1954, fully realize the extent of their peril and the fact that more direct and effective action will be required to preserve the American pin-lever watch industry.

(b) *The present competitive position of the domestic spring-powered clock industry in relation to imports*

Imported clocks, dutiable under paragraph 368 of the Tariff Act, are subject to compound duties based on 5 value classifications—under \$1.10, \$1.10 to \$2.25, \$2.25 to \$5, \$5 to \$10, and over \$10. The 1930 rates were reduced by 50 percent in the GATT negotiations conducted at Torquay in 1950-51. These reductions became effective October 1, 1951, the date of West Germany's accession to the GATT protocol.

In the 4 years since the 1951 tariff reductions became effective the cumulative percentage increases in imports of clocks have greatly exceeded similar increases in watch imports during any like period. Generally, since 1951 imports of clocks in each year have roughly doubled over the prior year. This arithmetical progression has already caused some dislocation in the domestic industry, and expected increases will make these conditions general and acute.

Imports of clocks during the 5-year period 1951-55 may be briefly summarized, without distinguishing value classifications, as follows:

TABLE V.—United States imports of clocks (par. 368), 1951-55

	<i>Units</i>
1951 -----	194, 000
1952 -----	281, 000
1953 -----	456, 000
1954 -----	905, 000
1955 -----	2, 052, 000

These are all spring-powered clocks. No exceptions have been noted, except perhaps in the case of samples or single shipments.

In the case of clocks, as is true of pin-lever watches, the trend of imports has continued to climb in the first quarter of 1956. Imports for 1956 are expected to double imports in 1955, continuing the pattern established during the last 5 years.

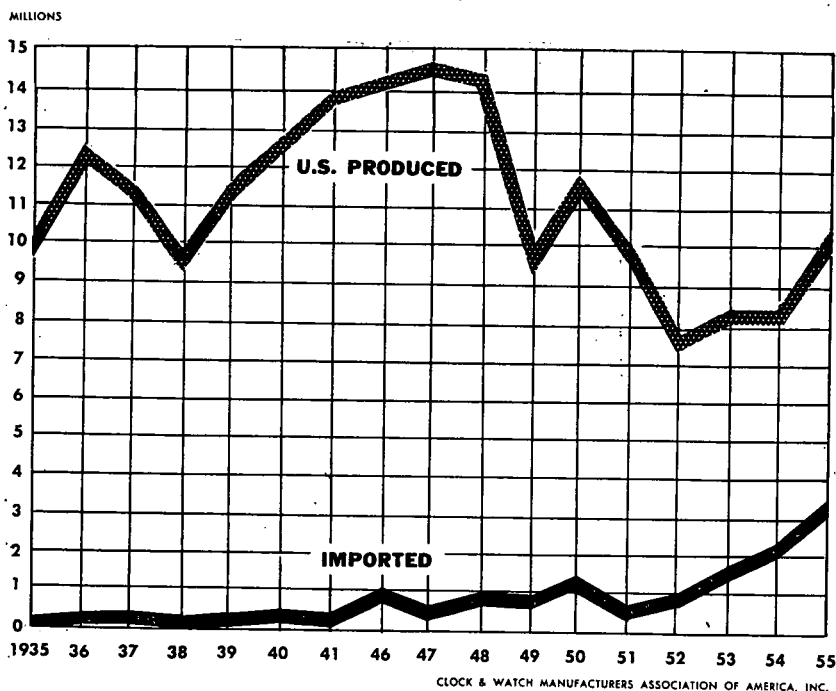
Analysis of spring-powered clock imports is complicated somewhat by the fact that a certain number of small clocks are imported under the watch paragraph. For purposes of the present calculations we have combined the figures as to imports of small clocks under the watch paragraph (par. 367) with clocks imported under paragraph 368. The total of all such imports of clocks in 1955 was 3,280,000.

The chart which follows compares the volume of domestic sales of spring-powered clocks with the volume of imports. It shows very clearly that whereas in 1951, when the tariff reduction became effective, imported clocks constituted 6.6 percent of the total United States market for spring-powered clocks, in 1955 imports occupied over 24 percent of the same market.

Total sales of spring-powered clocks in the United States market in 1955, both domestic and imported, were 13,437,066. This is the highest volume since 1948, and is considered to be well above average because of the prosperous conditions prevailing during the year. Assuming that the total market for spring-powered clocks continues at the same level during 1956—which we regard as unlikely—the estimated volume of at least 5 million imported clocks will increase from 24 percent in 1955 to more than 37 percent in 1956.

SPRING DRIVEN CLOCKS

U.S. Sales Figures



By further extrapolation it is manifest that, if the current rate of increase is allowed to continue, foreign-made spring-powered clocks will occupy more than 50 percent of the United States market by the end of 1957, and from that date forward the domestic industry will suffer rapid and progressive deterioration.

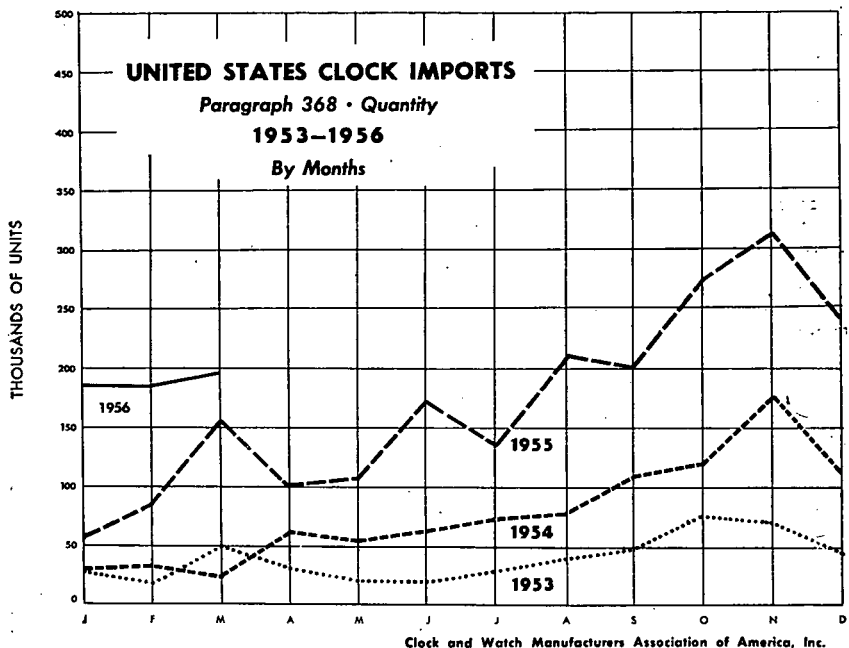
That we are not indulging idle fears in this connection is apparent from an examination of the chart showing the volume of imports of spring-powered clocks, by months, for the years 1953, 1954, and 1955 and the first quarter of 1956, which follows.

West Germany is by far the predominant country of origin of imports of spring-powered clocks. Out of 2,052,000 such clocks imported under paragraph 368 in 1955, 1,878,000, or 91.5 percent, came from West Germany; out of 1,228,000 small clocks imported under the watch paragraph, 1,006,000, or 82 percent, came from West Germany. The limiting factor on imports of German clocks is not the existing tariff rates, but the capacity of German manufacturers to produce clocks. Their access to the United States market is unlimited, and the competitive position of the domestic industry is thereby made correspondingly precarious.

Ironically, while this subcommittee is considering means of limiting the application of the defense essentiality doctrine to deny needed protection to this industry, and as the volume of imports of German clocks continues to soar, West Germany itself has just established quotas on imports of a number of industrial materials from the United States.² Quotas are not placed on imports into Germany of United States clocks for the simple reason that American clocks cannot compete in German markets and there is no need for a quota.

The United Kingdom has also inaugurated, and still maintains, tight quotas on the importation of clocks, as noted in the quotation from the London Economist. Sir Stafford Cripps, in his address to the House of Commons which

² Foreign Commerce Weekly, U. S. Department of Commerce, June 4, 1956, p. 8.



appears earlier in this statement, is authority for the fact that "before the war * * * practically the whole of our requirements, as regards the ordinary clock and watch trade, were imported from abroad * * * about 5,000,000 clock movements were imported into this country [the United Kingdom] annually." In its study of the British clock industry 10 years later, the Economist reports (issue of November 19, 1955, p. 676) that England's domestic production of clocks had increased to 4,700,000 and her imports had shrunk to 850,000.

It is not possible today for an American manufacturer to ship clocks to England; clocks are not even included in the token import list which has been established by the United Kingdom for some years.

Other countries—notably Japan—have growing timepiece industries and may be expected to enter the American market. Japan's production of clocks has tripled since 1947—from 1,248,000 to 3,547,000—and it is only a matter of time before Japanese clocks will follow Japanese textiles into this market.

It cannot be argued that domestic electric clocks are displacing spring-powered clocks, and that that is the principal competitive problem of the domestic spring-powered clock industry. Analysis of the entire United States clock market, from the figures available to us—including domestic spring-powered clocks, imported spring-powered clocks (there are no known imports of electric clocks)—shows that of the total, during a period of 6 years electric clocks constituted the following percentages of the total domestic market:

	Percent of the United States market		Percent of the United States market
1950	36.4	1953	40.3
1951	38.4	1954	38.1
1952	38.4	1955	35.5

One conclusion to be drawn from these figures is, as already noted, that imported clocks compete with domestic electric clocks as well as with domestic spring-powered clocks.

We believe that the foregoing accurately reflects the present competitive position of the domestic spring-powered clock industry in relation to imports. The great and sudden increases in imports since 1951 has already caused repercussions among domestic producers, and a continuation of the present trend in

imports will certainly inflict serious injury to the entire domestic industry and destruction to some elements of it.

No application for escape-clause action has yet been instituted with respect to imports of clocks dutiable under paragraph 368. The Office of Defense Mobilization has included the clock industry along with the pin-lever and jeweled-watch industries in its investigation to determine whether the national security may be affected by unrestricted imports.

But whether by escape-clause action or otherwise, prompt action is indispensable if the domestic spring-powered clock industry is to be preserved in any degree of economic stability. The refusal to relieve it from the growing pressure of imports could only be interpreted as conscious acquiescence in its destruction by foreign competition.

Problems of the domestic pin-lever watch and spring-powered clock industry related to foreign economic policy.—The principal problem of these companion domestic industries is one of survival in the face of import competition which existing tariff rates are no longer capable of regulating although such regulation is expressly contemplated by the Trade Agreements Act, as amended (19 U. S. C., sec. 1351 (a)).

The hazard to these industries is so real, and so acute, that the pending investigation into the defense aspects of the problem under section 7 of the Trade Agreements Extension Act of 1955 is fully warranted—unless the entire concept of defense essentiality is to be discarded in the interest of promoting foreign commerce, or its administration is made so restrictive that its significance to the national security becomes of little value.

II. JUSTIFICATION FOR INVOKING DEFENSE ESSENTIALITY AS A REASON FOR PROTECTING A DOMESTIC INDUSTRY FROM DESTRUCTION OR IMPAIRMENT BY INCREASED IMPORTS

The concept of protecting domestic industries against destructive foreign competition because of their importance to national security is not a novel one. For many years it has had a variety of applications in the United States. The practical reason is that no nation can afford "the risks which are inseparable from dependence on overseas sources," as Cripps put it, for the implements of warfare or defense. This lesson was forcibly driven home to England in the bitter and near-disastrous experience of World War II, when she became dependent on American producers for time fuses and other clockwork mechanisms.

Two familiar instances may be cited in which the United States has taken specific action to preserve or strengthen domestic industries, endangered by foreign competition, because they are deemed essential to national security.

In the maritime industry, for example, the United States provides substantial protection to American shipyards and American shipping lines against foreign competition. The purpose in doing so is to assure the continued economic health of our merchant marine in peacetime, to assure the immediate availability of shipyards and shipping in being in time of war or national emergency. Such protection is allowed only to shipyards and to shipping lines which are in actual competition with foreign yards and lines. The term "subsidy," as used to describe the aid provided, is actually a misnomer; the funds granted can only be applied to meet the differential in wage rates between the foreign and domestic maritime industries. That it is the wage-rate differential which puts the domestic shipping industry at a competitive disadvantage is acknowledged as a matter of national policy, and the labor-cost differential is specifically counteracted by our maritime laws.

Moreover, a vessel documented by the United States, if repaired in a foreign shipyard, must pay a special duty of 50 percent of the value of the foreign labor employed. Here again the object is not only to equalize the difference in labor costs—which, in the case of Canadian shipyards, is not as much as 50 percent—but to channel ship-repair business into American shipyards.

This is a classical example of special treatment of an industry because its products and services are deemed highly essential to national defense. But for this "defense essentiality" treatment the course of World War II might well have been different, and the justification for peacetime maintenance of a strong maritime industry is no longer challenged.

The domestic mining industry affords another instance of the same kind. We cannot afford the risks of dependence on overseas sources of copper, for example, in time of war. Consequently American producers of copper—who could not otherwise compete with imports of copper produced at low cost—are

afforded protection through Government contracts for the production of copper, even from low-grade deposits, for stockpiling purposes.

There is nothing new or untried about the special protection of defense-essential domestic industries. It is accepted as necessary even by the doctrinaire economists, normally exponents of free trade. Prof. William H. Kiekhofer, himself a strong supporter of free trade, in his work on *Economic Principles, Problems, and Policies* (D. Appleton, Century; first ed. 1936), has this to say (p. 794):

"In the event of war, it is highly desirable that a nation shall be as independent economically as possible. * * * As long as war remains an imminent possibility, this argument for protection will strongly and rightly appeal to young nations with undiversified industries as well as old nations, some of whose important industries cannot survive without a protective tariff."

Professor Towle, of Trinity College, agrees. In his *International Trade and Commercial Policy* (Lawrence W. Towle, first ed. 1947, Harper) he comments that (p. 324):

"The national-defense argument is another argument which cannot be evaluated in terms of the maximization of income. The importance of national defense cannot be overemphasized. Adam Smith himself, the father of free trade, admitted that 'Defense is more important than opulence.'"

Of course, one might espouse the viewpoint of Enke and Salera, who, in their *International Economics* (first ed. 1947, Prentice-Hall), reject the principle of protecting defense-essential industries in these provocative words (p. 297):

"As a general rule war is the worst possible time, since production manpower is lost to the armed services, to throw away the greater output that geographic specialization yields. *And nations which are so situated that enemy blockades will force them to be self-sufficient would be well-advised not to go to war, offensively or defensively.*" [Italic added.]

This advocacy of surrender without resistance as the desirable alternative to peacetime conservation of essential industries fails as a *reductio ad absurdum*.

The protection of defense-essential industries through adequate tariffs, quotas, subsidies, or other methods has been approved in principle and adopted in practice. In a subsequent section we shall show how special measures have been employed in other countries to encourage and protect clock and watch industries in peacetime.

We submit that the protection and preservation in peacetime of industries which are known to be essential to defense production must be accepted and wisely applied. A contrary policy would, in our opinion, contravene accepted principles of economics, conflict with long-established national policies and practices, and—in the pungent phrasing of Sir Stafford Cripps—leave "a very serious gap in what may be termed our industrial armoury." (Parliamentary Debates, *supra*.)

III. THE QUESTION IS TO WHETHER SPECIFIC CRITERIA CAN BE DEVELOPED TO REGULATE THE ADMINISTRATION OF SECTION 7 OF THE TRADE AGREEMENTS ACT OF 1955 AND THE FINDING OF DEFENSE ESSENTIALITY WITH RESPECT TO DOMESTIC INDUSTRIES GENERALLY

In its report of January 5, 1956 (Rept. No. 1312) this subcommittee said with respect to this problem: "Further study is required of the whole concept of defense essentiality if it is not to dominate over other necessary factors in trade policy." But should it not dominate, in a proper case, unless national defense has suddenly become secondary to the promotion of foreign trade?

Continuing, the report says:

"Not only should *impartial criteria* be discovered, but the whole concept of the mobilization base in the light of evolving military strategy should be reviewed." [Italic added.]

In its public release the subcommittee says that "this is an appropriate time to take an *objective* look at the criteria being used by the several Government agencies which have a voice in determining defense essentiality of domestic industries."

* * * the real question arises as to whether Congress should not determine the standards and establish guide lines for the executive branch in their determination of the defense essentiality of industries claiming special preference in foreign economic policy matters. * * * [Italic added.]

At the outset we are confused by the terms "impartial criteria" and "an objective look at the criteria being used" in the determination of defense essentiality. Does the subcommittee consider that the Department of Defense did not use impartial criteria, or lacked objectivity, in its study and conclusions as reported by the Assistant Secretary for Supply and Logistics, Mr. Pike, to the Senate Preparedness Subcommittee in 1954? Mr. Pike said in part (p. 40 of the hearings):

"* * * the total job done in our report constituted a very searching and careful inquiry into our 3-year mobilization requirements for watches, clocks, timepieces of various descriptions, in addition to the fuzes, timing devices, etc., that are made by the companies engaged in the manufacture of jeweled watches and the other members of the horological industry.

"And so, generally, as I say, our conclusion is that this entire industry is extremely important—is vital, I would say—to the national defense of this country. * * * We, of course, have a vital interest in it."

Any criterion or test used in a determination of defense essentiality—or in any other determination, for that matter—should be both impartial and objective. We have no reason to believe that the Department of Defense, the Office of Defense Mobilization, or the Senate Subcommittee on Preparedness used other than unbiased and reliable standards in evaluating the vast amount of information presented both by the domestic industries affected and by the opposing importers.

In our view, the question is not whether the criteria used should be impartial, or objective, or employed in good faith. That question can only be answered in the affirmative, and no one would have it otherwise. The critical question is whether it is possible, or feasible, to develop and prescribe a single set of criteria by which the essentiality of any and all industries to national security can be decided.

The problem is not that easily solved. There is no touchstone, no litmus, no single ready formula, or combination of formulas, by the test of which it can be found that one industry is essential to national defense and another is not.

It is not in the obvious cases that the difficulty arises. Manufacturers of military aircraft, of conventional firearms and explosives, of components of nuclear weapons, are easily classified as essential. There are industries which are perhaps equally easy to identify as not essential to defense or defense production. But the great bulk of American industry cannot be mechanically sorted into two categories—defense essential or not defense essential—by any prescribed standards, guidelines, or other fixed and rigid criteria. A wide discretion must in any case be left to the administrative agency making the determination. In the last analysis it is the armed services whose needs are to be met, and it is a matter of experience that military requirements are subject to frequent, sudden and drastic revision.

We think it would be extraordinarily difficult and probably impossible for Congress to legislate, or otherwise prescribe, the standards and guidelines to be followed by executive agencies in such investigations. To develop such a code would require an intimate and continuing knowledge and understanding of the details of military technology. It would be subject to such constant revision to accommodate changes in military strategy and procurement that it could never be effectively administered.

To be sure, there are elementary criteria to be considered in any case—the uniqueness of skills or facilities, questions of sole or duplicate sources, and the like—but these are the obvious points of departure for any inquiry into essentiality.

The overall problem of determining the importance of any industry to national defense is a difficult one. It turns in most cases on a question of degree, since almost any producer can make an argument of some sort on behalf of his contribution to security. Each case necessarily must be decided on its own individual merits, both as to how essential it is to national defense and what action, if any, is justified to preserve it against foreign competition.

This is a determination which we believe can only be made administratively with the advice and assistance of the Department of Defense, the Tariff Commission, and other cognizant agencies of the Government. It is our conclusion that the Office of Defense Mobilization should be permitted to develop, in its investigations, criteria which it finds to be appropriate to particular cases and to make its determinations accordingly. The right of congressional review and any necessary corrective action is always available.

It is pertinent also to observe that in any event sound criteria could be developed only in the course, and as a result, of investigations of particular cases

and in the light of specific facts. The same tests of essentiality could hardly be made applicable to potential producers of tank turrets and producers of the minute and delicate controls of guided missiles. Specific criteria could not be successfully developed in advance, and generalizations would be ineffectual.

We therefore strongly recommend that the development of criteria for determinations of defense essentiality, at least for the time being, remain the function of the Office of Defense Mobilization, with the advice of the Department of Defense and other agencies, and necessarily always subject to the review of Congress.

The subcommittee's report of January 5, 1956, raises the question as to "whether the present tests of defense essentiality reflect realistically the changing nature of war"—citing the possibility of nuclear war.

We would only comment that the declared policy of the United States is to avoid war with nuclear weapons. Under these circumstances—if it is assumed that that policy is successful and that the great powers forbear to use nuclear weapons as they have forborne gases and germ warfare—we must expect any new conflict to be waged with conventional weapons of advanced design, and new weapons. Whether nuclear weapons and more conventional weapons are alternatives or may be used in combination, it would not be prudence to weaken our readiness to meet an attack in either medium. Any significant shift to dependence on nuclear weapons would leave us vulnerable to conventional means of warfare.

The possibility of nuclear warfare, therefore, cannot invalidate the entire concept of the mobilization base and the means which must be employed to preserve it.

IV. THE DEFENSE ESSENTIALITY OF THE DOMESTIC PIN-LEVER WATCH AND SPRING-POWERED CLOCK INDUSTRY

We assume that it is not the subcommittee's intention to preview or to pre-determine the Office of Defense Mobilization's investigation of the essentiality of the American watch and clock industry. Detailed evidence on this point with respect to the pin-lever watch and spring-powered clock industry was submitted to the Senate Subcommittee on Preparedness at its hearings held June 30 and July 1 and 2, 1954. These hearings are available to this subcommittee and we will not encumber the record by repeating it. But since this industry has been selected by the subcommittee as part of a case in point, we will discuss some of the typical factors which underscore the importance of its role in defense production.

In January 1953 the Advisory Committee on Production Equipment submitted to the Director of Defense Mobilization a report entitled "Production Capacity: A Military Reserve." The essence of the Advisory Committee's report is contained in the following quoted paragraph:

"The Advisory Committee on Production Equipment is convinced that capacity to produce is, in fact, a military reserve of the highest order. We propose, therefore, that the policy of the Government, in preparing for a mobilization period, be to substitute, to the greatest extent practical, production capacity for the stockpiling of military end items."

It is precisely in this respect—the capacity to convert speedily to the quantity production of critical military end items—that this industry excels. This flexibility is the product of advanced production engineering—a combination of highly skilled labor, competent and experienced engineering and management, and readily adaptable mass production facilities and techniques. Years of careful training, planning and design for peacetime production have produced this complex of industrial resources, and many more years would be required to regain it if it were once lost.

In some studies the availability of highly skilled labor, experienced in the production of defense items, has been regarded as the proper basis for an essentiality determination. This is not the correct criterion in the case of the pin-lever watch and clock industry, where labor, management and facilities are required in combination. But if the maintenance of a reservoir of skilled labor is a factor, that, too, will be found in this industry.

Qualified and experienced horological toolmakers constitute perhaps the most critical skill in the industry. Four years of apprenticeship and four years of experience are required to produce a top-grade toolmaker. This is, obviously, not an occupation for transient labor, as the industry's experience confirms. Out of a group of 75 toolmakers employed in 1 plant producing pin-lever watches and clocks, 10 have been employed as toolmakers for 30 years or longer, 14 for 20 years or longer, and 30 for 15 years or longer. To put it another way,

of these 75 toolmakers, 54, or 72 percent, have been employed in toolmaking since before the United States entered World War II. It is the continued availability of this staff of specially trained technicians which is threatened by the constant rise of unregulated imports of competitive products.

Production engineering and production in this industry deal with minute sizes and minute forces. By way of illustration there are offered as exhibits for the subcommittee's inspection a fractional-ounce bottle in which have been placed 120,000 pallet pins; an even smaller bottle, of much less than thimble size, in which have been placed 750 filler plugs; and a minute container in which 100 hairsprings occupy only a fraction of the available space.

Miniaturization is an old and familiar practice in this industry. One of the classical engineering feats in our industrial history was accomplished about the turn of the century by the Waterbury Clock Co., now United States Time Corp., when it miniaturized a clock escapement to fit into the long-famous Ingersoll watch—"the watch that made the dollar famous." This was a noteworthy advance, partly because it made possible the mass production of watches, but more importantly because it brought the cost of personal timepieces within the range of everyone.

In the tradition of its predecessor United States Time Corp. has successfully produced a miniature and highly precise rate gyroscope, which is the next exhibit. This gyroscope has myriad military uses and applications, including the guided missile program and others of a highly classified nature. The exhibits presented consist of a bank of 3 gyroscopes, designed for interrelated operation, and 2 "exploded" models showing the exceedingly minute but rugged construction.

In other applications the coupling together of as many as eight such gyroscopes has been requisitioned for military items so classified that disclosure cannot be made in this public hearing.

United States Time Corp. is the sole source of this gyroscope. Attempts to produce it outside the domestic pin-lever watch and clock industry have been unsuccessful. It is a fact that established and recognized American producers of larger gyroscopes have contracted with United States Time Corp. to supply their requirements for gyroscopes of this size and capability. A résumé of these contracts and of other contracts with the armed services will be made available to the subcommittee, if requested, under the required classification.

This industry is uniquely qualified to manufacture, in volume, the great variety of timing devices required for military purposes. One of the better known of these is the mechanical time fuze, largely developed and produced by manufacturers of pin-lever watches and clocks. This fuze is still regarded by the armed services as so important that contracts have been negotiated by the Government with the E. Ingraham Co., United States Time Corp., elements of General Time Corp. and others in the industry to maintain their fuze-production facilities on a standby basis.

The standby basis take two significant forms, among others. In one instance a fuze parts production line has been maintained intact in "standby under power" status—that is, only degreasing of the equipment and staffing with operators is required to resume the production of parts of time fuzes. In other instances the tools for producing fuze parts are stored in the plants, and in a very short time—perhaps as little as 1 day—could be installed in existing screw machines and readied for production. In either case, of course, gearing up and procurement of materials would require additional time; but the basic conversion to the production of fuze parts can be accomplished in a very short interval.

Representatives of all, or almost all, of the NATO countries have visited plants of this industry to observe and learn the techniques of mechanical time fuze production and to copy the tools used. Specifically, representatives of the British Government, Italy, France, Belgium, and also of Japan, have examined the fuze production facilities and observed the operations of domestic pin-lever watch and clock producers.

Moreover, as one example of the leadership of this industry in the time fuze field, and the value of its know-how in production engineering, during World War II Westclox Division of General Time Corp. conducted a school for manufacturers from outside the industry for the purpose of demonstrating the techniques of producing the M-120 fuze.

Two points are worthy of comment in this connection.

The first is the argument to the effect that the mechanical time fuze has been superseded by the proximity fuze and electric fuzes. The continued maintenance of standby facilities for the production of mechanical fuzes is only one answer to this contention. Others are that the proximity and electrical

fuzes are special-purpose fuzes. They are not as susceptible of storage as are mechanical fuzes and, moreover, each of them must be equipped, as a safety and arming device, with a mechanical timing unit similar in function to the timing unit in the mechanical fuze itself. It is perfectly apparent that the mechanical time fuze will continue to be the workhorse so far as the military is concerned.

The second point, usually raised by the importers, is that the mechanical time fuse was also produced outside the domestic horological industry. That is unquestionably true—with the important qualification that the basic know-how, as well as the volume of production required came from domestic watch and clock producers, notably the E. Ingraham Co. We replied in detail to this argument and its variants in a letter to the Office of Defense Mobilization dated June 7, 1954, a copy of which has already been furnished to the subcommittee's staff economist and another copy of which is filed with this statement.

The instances of specific items of defense materiel which come from the pin-level watch and spring-powered clock industry could be multiplied many-fold. In addition to the manufacturers already named, Lux, New Haven, Gilbert, Sessions, Chelsea, and Herschede are all converted to defense production of critical defense items in time of war. In addition, special research and development contracts have been performed, and these generally are of a highly classified nature.

Component items for guided missiles and for nuclear weapons are supplied from this industry; Gilbert, for example, is apparently the sole source of a special timing unit related to nuclear experiments.

The following list of typical defense items manufactured by this industry during World War II gives an idea of the wide variety of its production:

Fuze and fuze parts for bombs, sea mines, rockets and flares.

Detonators for shells. Timers for bomb sights, sea mines, antitank land mines, life boat transmitters, intercommunication units, battle announcing and many other war mechanisms.

Keys for radios, telephones, beacons, and other communication and warning devices.

Aerial camera components.

Airborne radar antennas.

Turn control (automatic pilots).

Precision optics.

Tubes for airplane engines.

Bore sight and intervalometer continuity testers.

Dial mechanisms for tank radios.

Intervalometers.

Accelerometers.

Camera overrun controls.

Field radio cases.

Course clock.

Averagers for sextants.

Antennas mounts for Signal Corps.

Demolition firing devices.

Incendiary bullet cases.

Direction finder—Link trainer.

Flasher unit—aircraft running light.

Commutator.

Dual motor and interrupter unit. Bullet cores.

D. C. signal flashers.

Antiaircraft battery commander observation instruments.

Azimuth instruments.

Mine relays.

Listening devices.

Clock movements in recording instruments used in the manufacture of explosives, including the atom bomb.

Specially designed clocks used in the atom bomb test program.

The extent and intensity of the demands upon the industry in time of war will be of interest to the subcommittee. To select one example, a domestic pin-lever watch and clock manufacturer which had no defense sales in 1939 increased its sales by 672 percent in 1944, when 99 percent of the total was in defense

items. In 1949, following the war, its sales of defense items was again zero, and its civilian production was only one-half of its 1940 volume. But in 1953, with the Korean war in progress, total sales were 525 percent above 1940 levels and 74 percent of its total sales went to the military. Today military procurement accounts for only 20 percent of this company's total sales. The point is, of course, that in peacetime the demand upon this industry for actual production of defense items is negligible, but in time of war it is virtually unlimited.

There is considerable significance in the fact that other nations are conserving and rebuilding their watch and clock industries. England's action in 1945 and since, to which we have already referred, was "openly strategic," as the London Economist describes it. Prior to World War II and during the rise of the Hitler regime, Nazi Germany undertook to destroy the British and French timepiece industries because of their strategic importance. By a system of subsidies which reached 45 percent of production costs on watches and clocks exported from Germany the British timepiece industry was undermined and ultimately destroyed. This was the situation referred to in Sir Stafford Cripps' statement to the House of Commons, reproduced above, when he said (p. 1045) :

"* * * when the war came and we needed, naturally, to mobilize all the engineering resources we could muster, the inadequacy of the clock and watch industry left a very serious gap in what may be termed our industrial armoury."

The intensive rebuilding of the British timepiece industry as a strategic measure is well documented in the Economist article entitled "Taking Stock in Time," which we here reproduce for the subcommittee's information.

[From the Economist, November 19, 1955]

TAKING STOCK IN TIME

Although the exhibition that clock and watch makers held at the Goldsmith's Hall last month bore the title, "Five Centuries of British Timekeeping," exhibitors were more concerned to render an interim account of what they had done with the substantial measure of Government aid and protection granted 10 years ago for the resuscitation of their twin industries. The direct aid consisted of £1 million spent to build factories and buy special plant to be rented to the watchmakers, and to found a horological college to train technicians for both industries. The existing duty of 33½ percent on watches was reinforced by tight quotas on imports; and the 20 percent duty on clocks raised to 33½ percent (25 percent on alarm clocks) with quotas for all except electric clocks.

Reckoned by mere output alone, the account the watch and clock makers had to give of themselves was a fair one. Watch production, virtually extinct in the thirties, totalled just short of 3 million complete pieces last year, and should approach 3½ million this year. Clock output, meanwhile, has grown since 1946 from under 2 million to 5½ million. Together, if timing recorders and switches of various kinds are counted, the two industries achieved a turnover of more than £10 million in 1954. With distributors' margins and purchase tax added, this represented home retail sales of perhaps £23 million, as against the retail value of £9 million for watches allowed in from abroad. These are impressive figures, but they do not yet mean that the industry would remain viable without such protection. It will take more than 10 years to regain the lead that Swiss and German firms seized 50 years ago.

The decline of Britain's former horological prowess came from a reluctance to accept the machine methods that led to the production of interchangeable and high-precision parts in Switzerland and the United States from 1870 onward. By the twenties the domestic watch industry was almost extinct, despite a tariff of 33½ percent introduced by McKenna; and Robert Harwood was compelled to take his plans for the self-winding watch to Switzerland. Watch imports exceeded 7 million in 1938; about a million were assembled here, and some imported movements were put into British-made cases. Clockmaking did not become equally moribund, but it was confined to the medium-priced and costlier grades. When the manufacture of electric timing mechanisms became a commercial proposition late in the twenties, several firms were attracted from outside the mechanical-clock field, including S. Smith & Sons. Factories were established to make escapements, wheels, pinions, and certain other parts; workers were trained, at first with Swiss materials; and various firms began

to produce or assemble complete clocks. But a few years later the British market was submerged in a flood of cheap clocks from German makers who benefited from various forms of managed currency and a subsidy on exports that reached 45 percent of production costs. Smith's took over several of the dying factories and retained a nucleus of skilled staff making electric clocks. Output totalled 1 million clocks in 1939, but the country was almost wholly dependent upon imports.

The reasons for the deliberate revival of these industries in Britain by the Government are openly strategic. Clock mechanisms are as much at home inside shells and bombs as on mantelpieces; in wartime there is a premium of labour skilled in high-precision instruments, and demand for ordinary clocks and watches goes up. In the Second World War the British predicament was more acute than in the first. After stocks of Swiss timepieces were exhausted, Smith's managed to make more than 100,000 aviation clocks and watches with machinery it had ordered (and was able to ship) from Switzerland before 1940; and before the war ended this firm made pocket, stop, and wrist watches, attaining an output of about 1,000 a week. But sizeable shipments still had to be made from the United States, and the Lennox-Boyd committee in 1944 recommended financial assistance to revive the horological industries.

Four firms now make watches. U K Time, at Dundee—a subsidiary of the United States Time Corp.—made over a million watches in 1954; it has concentrated upon the cheapest ranges of nonjewelled wristwatches from 49s.4 to £5 15s. 6d under the trade name "Timex." The other three watch firms are British. Smith's, which is the second largest manufacturer, and Ingersoll, which cut its American ties 25 years ago, jointly own the Anglo-Celtic Watch Co. with a factory at Ystradgynlais, which has some disadvantages of a development area, and a high absenteeism rate. Production began with pocket watches in 1947, and wristwatches were added 3 years later; it now makes about 1.2 million a year with rather more pocket watches than wristwatches. The nonjewelled pocket watches sell from 25s. 9d. upward, and the prices of the 5- and 7-jewelled wristwatches start from 49s. This cheaper range is also catered for by Louis Newmark, with a factory at Croydon producing a half a million or so watches a year. Both manufacturers and dealers import higher grade watches to complete their selling ranges (repairing and servicing these is also a useful way of training skilled workmen); Smith's, which started to manufacture high-grade watches in 1949 in the factory it built at Cheltenham early in the war and used for Government work, makes up to a quarter of a million of these a year.

There have been no major casualties in the watch industry, but three ambitious projects to mass-produce cheap alarm clocks and 30-hour clocks collapsed after losing considerable sums of money. Three major plants are left. The largest, Smith's factory at Wishaw in Lanarkshire, believed to be the most merchandised in the world, is now turning out well over 2 million complete clocks a year at prices from 21s. upward. With 14 factories all specialising in making or assembling components, the Smith's group contributes over half the 2 industries' total output, including about 90 percent of the half-million synchronous electric clocks produced (these are doing well again now that sales are no longer plagued by power cuts). Westclox, at Dumbarton, the American-controlled second producer, comes next with an annual production exceeding a million. Third is the factory owned by John D. Francis, at Fazackerley, Liverpool, which makes rather more than half a million clocks a year. Between them these 3 factories are selling 4.3 million clocks a year, nearly 3 million in Britain and about 1.4 million abroad. Other plants make 8-day clocks, strike and chime pendulum clocks, electric clocks, and more specialist or costly clocks and chronometers.

Neither industry is yet clear of development problems. Shortages of skilled labour and specialist high-precision machines, and the lack of ancillary firms to make components have hindered the makers most. Intensive mechanisation and deskilling the whole cycle of operation have helped with the labour problem, but training even unskilled men and girls is expensive and takes time. About 60 skilled men have come from the Horological College, but it takes 3 years, plus 2 years' military service, before the trainee is ready for the factory. To meet the lack of manufacturing plant, machines were hired from Switzerland under an agreement, reached in 1947, that guaranteed the Swiss a limited market here in return, plus a promise that British watches exported to countries outside the

Commonwealth would not exceed 5 percent of total British output. But nearly all the machine tools required by the two industries have had to be made in their own shops.

British firms as yet have nothing like the collection of component subcontractors on which the Swiss and Germans are able to base their operations. But all the alloys used are now available here, as are most of the main parts, such as jewels, hairsprings, mainsprings, and hands. One firm, British Precision Products in the Smith's group, has even been able to sell hairsprings in Switzerland. The industry hopes to make every type of clock and watch, including small automatic watches, once it builds up an adequate force of precision tool-makers. Precision in this industry has a special meaning: an accuracy of 99.9 percent means as much as a minute lost or gained every day.

German competition, with labor there costing a quarter to a half less than here and willing, moreover, to work 60 hours a week during peak periods, against 30 hours in quieter months, is again a force to be reckoned with in the clock market. British factories are perhaps more mechanized than those in the Black Forest and their equipment is of more up-to-date design. To hold this lead will require production methods approaching automation, such as transfer machines and electronic control devices. But if unit costs are to be kept down, this will also mean a level of output higher than the 4.7 million clocks and 4¼ million watches (including imports of 850,000 and 1½ million) that were sold here in 1954, and export shipments bigger than last year's respective totals of 1.6 million and 200,000.

Before the war the home market absorbed each year an average of 8½ million watches (all imported) and 6 million clocks (all except a million imported). Prices now attract purchase tax and watches last longer. Far more of the watches now on sale last 10 years or more. Even so, replacement sales, the buying of watches for second-best wear, and an impressive potential market of people who do not own watches, as indicated by several market surveys, make the watch industry confident that they can raise sales to a level that will justify further mechanisation. But while these industries have a protected home market there is little to shield them from competition overseas; most of the 1½ million clocks Britain exported last year—30 percent of total output—were shipped to the Commonwealth.

It is not easy to guess how far the manufacture of watches is yet profitable; but clock manufacture appears well on the way to becoming viable. Whether or not watchmaking does so, Government policy still lays down that this industry shall not be allowed to go out of business again—though the strategic value of watch manufacture, as the American Defence Department pointed out this year, can be exaggerated. As the clock industry becomes a commercial success it may well be faced with some reduction in its protection from imports as part of a European or world easement of tariff walls. But such a move would not hit Britain alone; all the horological industries of the world have been built up, and are still safeguarded, by import duties higher than those here. (End of quote.)

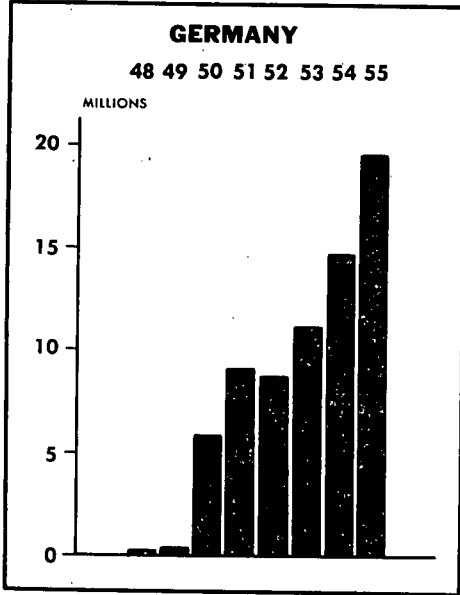
Revival and growth of the watch and clock industries is being encouraged in other countries, as well. The chart which is here inserted shows, in addition to the British picture, the recent growth of the timepiece industry in Germany, Japan, and Russia, whose current 5-year plan calls for the production of 33.6 million clocks and watches by 1960. The line graph which follows the chart shows a comparison of United States and Russian production, with a projection of the latter to 1960 on the planned growth.

There is nothing novel about applying the doctrine of defense essentiality to the American timepiece industry. As a matter of fact, this country is 10 years behind the British in visualizing the importance of maintaining its skills and facilities in peacetime. From the evidences of the growth of the horological industries in other countries it appears very clearly that the United States is the only major nation which is failing to preserve and encourage its timepiece industry.

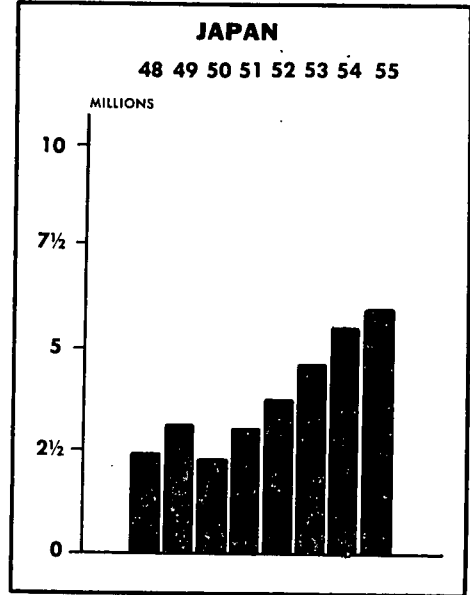
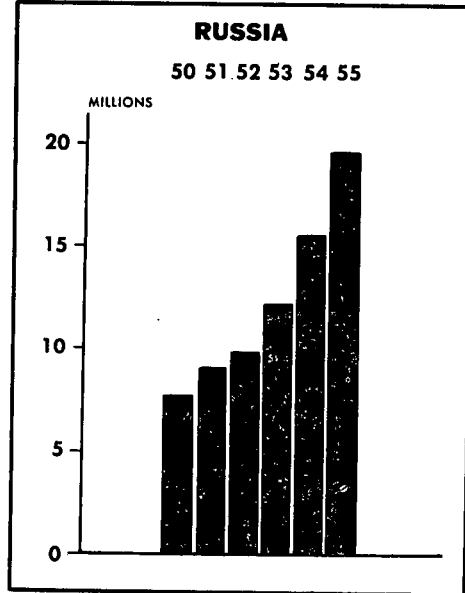
Both the Department of Defense and the Senate Preparedness Subcommittee have already determined that the domestic horological industry is essential to defense. The same question is once again under investigation by the Office of Defense Mobilization. We believe that the findings already made are fully supported by the facts. The current Office of Defense Mobilization study, if related to the actual and anticipated needs of the armed services for products of the industry, will develop sound and adequate criteria in the particular case for its determination.

TOTAL HOROLOGICAL PRODUCTION

by Countries



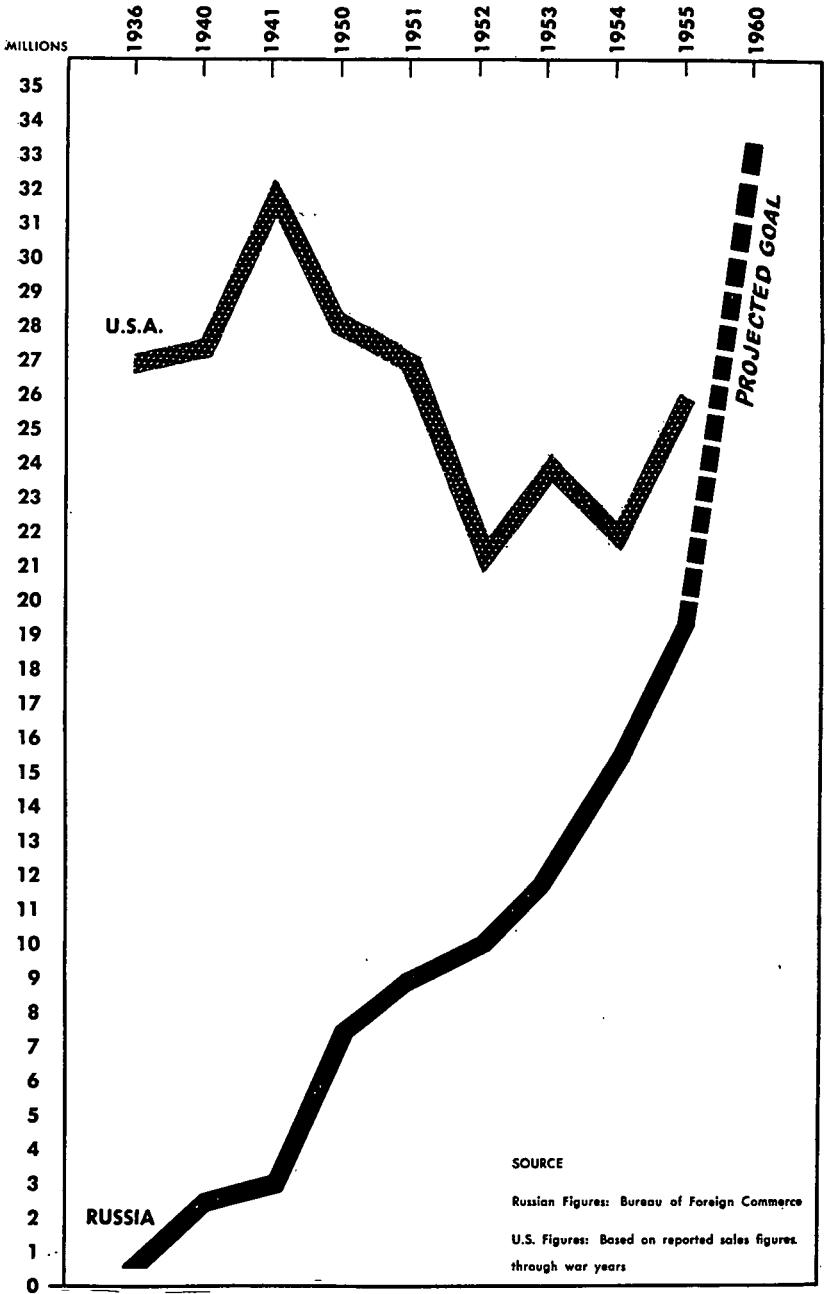
SOURCE: U.S. DEPT. OF COMMERCE



CLOCK & WATCH MANUFACTURERS ASSOCIATION OF AMERICA, INC.

COMPARISON OF U.S. & RUSSIAN

Clock & Watch Production



CLOCK & WATCH MANUFACTURERS ASSOCIATION OF AMERICA, INC.

In the last analysis, what critical items the armed services require, and which industries are capable of supplying them at the times and in the quantities required, will always be the most reliable means of determining the question of essentiality to defense.

Representative BOLLING. Senator Douglas, do you have some questions?

Senator DOUGLAS. First, I have a comment, and then perhaps a few questions.

I understood Mr. Reeves to say that if we, Members of Congress, reject the criterion of defense essentiality as a standard for determining tariff and a subsidy policy, it would have very grave effects upon a wide variety of American industry, ranging from the maritime industry to mining and including many others as well. Now, I think it should be made clear that I do not think that any member of this committee questions the importance of this criterion. The father of the doctrine of free trade himself, Adam Smith, said that defense was more important than opulence. However, we are faced with the question as to whether, in fact, an industry, or section of an industry, is essential.

There was an overtone in Mr. Reeves' comments; not explicit, but sort of an overtone, that this was a matter for administrative authorities, the Defense Department, ODM, and so forth, and not a matter for Congress. Now, I have been willing to delegate considerable degree of responsibility to the Tariff Commission, but I think it is important to realize that the ultimate responsibility, whether we delegate it or exercise it directly in this matter, rests with the Congress of the United States.

We have passed subsidies for the construction of the merchant marine and for the operation of the merchant marine the other day and at the same time passed the subsidies for the airplanes. Now these are our responsibilities delegated to us by the people, and we must inform ourselves about the little undertone of gentlemanly complaint that we were going into these matters fresh when the industry thought they had already been decided. This is part of the responsibility of Congress, and we are seeking, as honestly as we can, to find out the facts.

Incidentally, I may say that some of the worst abuses in the British system, about which some of our friends have complained, have been under the change which the British system introduced some 25 years ago, of giving authority to adjust the tariff to an administrative board, which operates through orders in council with very little control by Parliament. And from what I saw of this decision about the Swiss watch industry, that had been done by an order in council by this group. Possibly, if the British Parliament had to deal with it, they might have considered the effect upon the United States and the results might have been better.

So, this first statement I want to make is in the sense of a plea that we are not inquisitive busybodies sticking our noses into some matters that are of no concern of ours to deal with and that we should leave to our betters. That is the first thing.

Now the second question I would like to ask Mr. Bulova.

Mr. REEVES. Might I just comment on that?

Senator DOUGLAS. Yes.

MR. REEVES. Our position has not been that this is not a matter for Congress to consider. Congress has the prerogative to determine that defense essentiality shall be no consideration. But if it becomes a consideration, it seems to us that it has been demonstrated in these hearings that it is very difficult to lay down the separate criteria which could be embodied in a statute and by which any of these investigations could determine either essentiality or nonessentiality.

Representative BOLLING. I think the Senator has some more questions.

Senator DOUGLAS. Mr. Bulova, you are in a somewhat unique position, in that you are both a domestic manufacturer and a Swiss manufacturer?

MR. BULOVA. Correct.

Senator DOUGLAS. Now I do not want you to impeach your Swiss associates if this violates your business standards of ethics, but are you a member of this so-called Swiss cartel?

MR. BULOVA. Yes, sir, we are.

Senator DOUGLAS. Do your representatives attend these meetings?

MR. BULOVA. We do.

Senator DOUGLAS. Do you remember the passage in Adam Smith—

MR. BULOVA. We go to no meetings as far as Switzerland is concerned. You cannot operate in Switzerland without being a forced member of the cartel. We are not invited to them.

Senator DOUGLAS. You do not attend them?

MR. BULOVA. No.

Senator DOUGLAS. You pay your dues—

MR. BULOVA. That is right.

Senator DOUGLAS. But you do not attend?

MR. BULOVA. Well, in Switzerland, there is a tax that they make us pay, and it is a method prescribed, and we have to confine ourselves to the price and their regulations. They examine our books and check to see that we bill at the right price.

Senator DOUGLAS. Who governs that cartel?

MR. BULOVA. Governs the cartel?

Senator DOUGLAS. Yes.

MR. BULOVA. Well, the cartel is a trust.

Senator DOUGLAS. Yes, but who runs it?

MR. BULOVA. It is run by the superholding company, representing all the manufacturing components of Switzerland, as they say. The bridges and plates are the main body of movement made by one segment of the watch trust—there is also the escapement trust, which makes all the escapements and the balance wheel trust. All those are combined in one superholding company which has a control of all of them, and we do business with them. We have to purchase from them certain component parts, because there is no particular manufacturer there that makes all his own component parts. We are not permitted to, so the trust has control of everything. We may make bridges and plates, but they have never permitted us to make hairsprings or mainsprings, nor can we make dials and other parts which we must purchase from the trust.

They also prescribe from our manufacturing cost the fixed selling price that we can export these movements at to the United States.

Senator DOUGLAS. They fix the price?

Mr. BULOVA. They do.

Senator DOUGLAS. Now is the price at which they export these movements to the United States different from the price at which the same movements are exported to other countries?

Mr. BULOVA. In some instances, yes, and in some instances they have higher prices.

Senator DOUGLAS. Higher prices to the United States?

Mr. BULOVA. No.

Senator DOUGLAS. Or, higher prices for other countries?

Mr. BULOVA. Higher prices for some other countries.

Senator DOUGLAS. What other countries will they have higher prices for?

Mr. BULOVA. They might have a higher price, for example, in the northern countries, Sweden, Spain. They just make a higher price range.

Senator DOUGLAS. For an identical product?

Mr. BULOVA. For identical products.

Senator DOUGLAS. Well then, would you say this is dumping, so far as the United States is concerned?

Mr. BULOVA. No. I would not. I can explain this. As a Swiss manufacturer, we are prescribed a minimum of 25 percent markup on our cost for our selling price. We can charge more, but not less, and some of the manufacturers shipping to other countries, where they have less competition, will charge more. But we must have at least a minimum markup of 25 percent on our actual manufacturing cost, our put-together cost on complete movements.

Senator DOUGLAS. Suppose you did not do that?

Mr. BULOVA. We are forced to charge that.

Senator DOUGLAS. Suppose you did not? Suppose you asserted the principle of free competitive enterprise, what would happen?

Mr. BULOVA. The Chamber of Switzerland would put you out of business, because you cannot ship without a Swiss Chamber export certificate. Your billing is subject, first of all, to your consular invoices, and you must have a certificate from the Chamber of Swiss, which is a Government central office which checks your consular invoices. And if you do not get a certificate, you do not ship.

There is no such thing as shipping at a lower price.

Senator DOUGLAS. Well, now, what about the prices of—

Mr. BULOVA. You can ship at a higher price.

Senator DOUGLAS. What about the prices of watches that the Swiss companies sell directly in Switzerland, not only to the Swiss, but to the tourists who come in, would those be at a different price from the export price?

Mr. BULOVA. Well, yes. The tourists that come in will buy in the retail stores and, of course, the retail stores purchases from the manufacturer.

Senator DOUGLAS. Is the 25-percent markup required there?

Mr. BULOVA. Oh, no; the retail store will make his own markup at whatever he thinks is proper. Let's say it is a \$6 watch. He may sell it for \$10, he may sell it for \$12, or he may sell it for \$15, depending. He will usually make a markup of 50 to 60 or 70 percent on his cost.

I have something here on the cartel question.

I expected I might be asked a question about the Swiss Watch Trust,

so I have prepared a brief comment which I should like to read.

I must observe, in all frankness, without meaning to give offense, that the events of the last few days have confirmed my conviction that this subject requires more attention than it has received. There cannot be a rounded discussion of the subject of these hearings, involving free trade and the watch industry, without a careful exploration of the relationship and impact of the Swiss cartel on domestic watch manufacturing and United States trade and commerce.

Prior to the opening of these hearings I urged this committee, through my attorneys, to consult with and invite disinterested and competent witnesses to appear before it and inform it in detail on this matter. I would now like to reiterate our request that this committee take testimony from the Department of Justice which has made a careful study and analysis of the operations of the Swiss cartel as they affect United States trade and commerce. It has had available to it thousands of documents subpoenaed from the files of the United States importers, including my own company which is a defendant.

The limited questioning of the witnesses to date on this question, without the committee or its staff having the background of knowledge and information that is available to it through Assistant Attorney General Stanley Barnes, has resulted in a distorted picture. The issue in this regard is not whether the Swiss cartel has been a good cartel or a bad cartel in the general economic sense, or whether it has been guilty of dumping. So far as I know that has not been charged. The issue which I and other defendants must meet in the Government complaint in the civil antitrust case is whether the actions of the Swiss cartel plus the actions of the importer defendants, including Bulova, have interfered with the development of a free competitive American watch manufacturing industry, or otherwise affected United States trade and commerce in watches.

As a defendant in this case who must ultimately answer to the court and who also must endeavor to continue to do business in Switzerland, operating and conserving our company's properties there, it would be improper and inadvisable for me to undertake to further inform the committee on this subject. I shall not attempt to do so. Nor could I do so even if I were willing in the light of the limited time at my disposal, and in the light of my lack of full information about the activities of other defendant importers.

I would hope that upon careful reflection your full subcommittee will review the earlier decision communicated to our company counsel by your chairman's letter of May 25, and, before concluding its investigation communicate with the Department of Justice, and also with some disinterested economists who are informed on this matter, so that it may have the whole picture before it.

Apparently, Mr. Lazrus yesterday unintentionally misled this committee when he told you that Benrus never agreed with the Swiss cartel to limit its production in the United States. Paragraph 29 (a) of the Government complaint charged that—

On or about January 1, 1945, defendant Benrus agreed with coconspirator Superholding to abandon its manufacture of watches and component parts within the United States and so to liquidate its manufacturing plant in the United States as to prevent any other existing or potential manufacturer from using it for horological manufacturing purposes * * *.

In its answer to the complaint, in paragraph 29, Benrus admits that it entered into such an agreement, but Benrus says this agreement was canceled prior to the filing of the complaint and alleges that the agreement did not restrain the manufacture or sale of watches in the United States during the period it was in effect.

I have already submitted in response to a subpoena a copy of an agreement between my company and the Swiss watch organizations which speaks for itself. That agreement provided among other things that Bulova was limited to the manufacture in the United States over any 3-year period of a quantity of finished watches or movements no greater than two-thirds of the quantity of finished products it imported from Switzerland.

I need hardly add that such an agreement was necessary as a condition to our continuing to do business in Switzerland at our plant there which must buy around 70 percent of its parts from other members of the cartel.

The point I would like to make is this, we have been enabled to do business in Europe. It might be interesting to know that when we started our manufacturing business back in 1928 and 1929, there was not a Swiss cartel and there was not a Swiss trust. That started about that time. And I might admit that I was for it and I even helped the Swiss in putting it together.

Insofar as our own manufacturing in the United States was concerned, I was at that time able to buy machinery and equipment, because I would have had to take equipment, or get equipment, from Elgin, Hamilton, or Waltham if I wanted to establish a manufacturing plant here. I might also say this, that the plant that we established here we had no idea of establishing as a munitions plant and had no idea that it would ever be used for that purpose.

We had become publicly financed at that time, and were asked by our banker, whether, in the event we got cut off from Switzerland, we would be out of the watch movements business, because all our movements were made there at the time. We were asked at that time to set up a plant here, fully equipped with machinery so that if we got cut off there, we at least would not be out of business. They thought that was a precaution.

Over a period of time, at that time a depression year, I was able to get the contract labor law waived by the Labor Department so I could bring over here 20 technicians, which I did, from our own plant in Switzerland—and we had to have their know-how. I may tell you briefly, that it took me a period of over 10 years before I was making every component part of a watch. Then came 1939 and 1940, when the war came on and we were converted by the Government 100 percent.

So, the very thing which the plant was created for, to make movements here to supply civilian business, never came to pass. Our plant was converted, and we were permitted to make 30,000 or 40,000 watches a month, which went into the United States Armed Forces. That is the picture of that.

Senator FLANDERS. Mr. Bulova got a little bit beyond the point where I was going to ask you to yield, Senator Douglas, but may I ask a question?

Senator DOUGLAS. Yes.

Senator FLANDERS. As I have gathered, Mr. Bulova, your description of the watch trust or cartel, its actions, so far as American com-

petition is concerned, is to raise prices rather than dump. In that case, I am wondering whether the Swiss cartel does not offer a measure of protection to the American manufacturer, to the extent that it does maintain prices rather than dump?

Mr. BULOVA. Well, in practice, of course, they are way below our cost of production over in Switzerland. And, naturally, this 25 percent markup or "profit" that we must add to our Swiss cost of manufacture—even though our Swiss plant is a branch of our New York corporation, so that we make no "profit" on what we ship to ourselves in New York—the mathematics of that is that on the 25 percent "profit," we pay an approximate tax of about 40 percent to the Swiss Government. And the hypothetical profit that we make on ourselves, shipping from us to ourselves, becomes part of the New York profit. But they have maintained certain "barrage" prices which include, of course, a tax for this propaganda fund and publicity which they put on every watch that goes out of the country.

The point I want to make is this, that although our cost of production in Switzerland is low, our cost of labor there is low, compared with our labor here, which, as I explained, has risen 300 percent. We are still able to invoice a 25-percent markup on our cost of what we ship over here from Switzerland and land that watch, with duty paid, here for \$3 and \$4 and \$5 and \$6 less than we could produce it in this country.

Senator FLANDERS. May I make one quick observation, sir?

It seems to me that in this, the effects of this Swiss cartel, there is something similar to that of Judge Gary's old umbrella over the steel industry and that which exists in the high prices and high profits of General Motors, helping the independents to struggle along. It is a rather strange situation, but there seems to be a little element of that in this cartel.

Mr. CENERAZZO. Mr. Chairman, I think it is important, on the basis of the question that Senator Flanders asked, that it be pointed out that when the United States raised its tariff, the Swiss cartel reduced its barrage prices to offset the difference, so that, in effect, the full effect of the tariff increase was absorbed, some of it was absorbed, by lower prices. And the cartel, from all standpoints, is not to help the United States in any way or an American manufacturer in any way.

Representative BOLLING. Do you have any further questions, Senator Douglas?

Senator DOUGLAS. This chart that you introduced, Mr. Sinkler, did you check those national income comparisons? Have you checked those figures pretty carefully?

Mr. SINKLER. This source material for the chart, Senator, was a memorandum attached to Mr. Solterer's statement, and in detail sets forth the source of all of the figures that are shown.

Senator DOUGLAS. Then you believe it to be accurate?

Mr. SINKLER. I believe so, yes.

Senator DOUGLAS. This shows that the increase from the national income in the United States from 1953 to 1955, was virtually the smallest of any country in the western world; isn't that true, an increase of a little over 5 percent?

Mr. SINKLER. That is what the chart shows; yes, sir.

Senator DOUGLAS. Sweden, Belgium, Italy, and Switzerland, more than twice that much; the United Kingdom, more than twice as much; Norway, 3 times as much; France, three times as much; the Netherlands, more than 3 times as much; Germany, almost 4 times as much.

I would suggest that this chart be submitted to Mr. Leonard Hall for campaign purposes to show that the increase in the United States in 1955 over 1953 has been the smallest in any country in the world.

Senator FLANDERS. Mr. Chairman, may I suggest that that is the result of the Marshall plan, put into effect by the United States, and wartorn countries—

Senator DOUGLAS. Whatever the explanation may be, I would say that the increase has not been so comparatively great in the United States as the prosperity prophets say.

Mr. CENERAZZO. One enjoyable thing, Senator, is that it has finally come to light that we have United States Senators who are willing to fight for America and not to give it away.

Senator DOUGLAS. And may I say that any United States Senator is willing to fight for America, and would not be willing to give it away.

Representative BOLLING. Senator Flanders?

Senator FLANDERS. I have been interested in a number of things, Mr. Reeves, in your testimony. One of them is that you would seem to have played the same part in these delicate devices, timing devices, that has been played by the watch industry, which leads me to wonder whether the clock-movement watch industry is not just as essential and serves just as important a service in the defense economy as the jewel-lever watches?

Mr. REEVES. Senator, if I were to make that kind of a comparison, I would be ambushed before I got 10 feet outside the door.

I will say, however, that I think it is demonstrable that this industry has a degree of essentiality which is peculiar to it and which is not exceeded by any other branch of the horological industry. I think, for example, that when you take an item as small as this one, which goes into, both, the mechanical time fuze and proximity fuze, and find that you have to grind and polish these two little wings on this very delicate device, you find that there is no difference between the miniature sizes, or miniature operations that are performed in any of these industries.

Mr. SINKLER. May I add that the jewel watch industry concurs with what Mr. Reeves has just said, that nothing we might have said infers that the jewel-watch industry is essential to the exclusion of the nonjewel parts.

Secretary of Defense Wilson made that very clear in his letter where he said that the industry, as a whole, is essential. And if I may, I would like to introduce the Secretary's letter to that effect.

(The letter is as follows:)

APRIL 27, 1955.

HON. LEVERETT SALTONSTALL,
 HON. EVERETT M. DIRKSEN,
 HON. EDWARD MARTIN,
 HON. MILTON R. YOUNG,
 HON. CARL T. CURTIS
 HON. STYLES BRIDGES,
 HON. WILLIAM LANGER,
 HON. W. A. PURTELL,

HON. ROMAN L. HRUSKA,
United States Senate, Washington, D. C.

GENTLEMEN: I am sending the original of my reply to your letter of March 30, 1955, to Senator Saltonstall, simply because of his continued and early interest in the subject of the essentiality of the jeweled watch industry. A copy is being delivered at the same time to each Senator who signed the letter.

I wish to emphasize that the release of the declassified Department of Defense report on the essentiality of the jeweled watch industry on February 28, 1955, was a routine matter and did not in any sense change the position that the Department of Defense took with regard to the horological industry last summer.

The Department of Defense endorsed the tariff increase by letter on July 1, 1954, to the Director of the Budget, Mr. Rowland R. Hughes, a copy of which is attached. You will note this endorsement supported the essentiality of both the jeweled and nonjeweled watch industries. This letter, and the testimony of Mr. T. P. Pike, Assistant Secretary of Defense (Supply and Logistics), on June 30, 1954, before Preparedness Subcommittee No. 6, represents the authoritative statement of the Department of Defense on the essentiality of the horological industry.

The conclusions of the Department of Defense report of April 26, 1954, on the essentiality of the jeweled watch industry are apparently misunderstood and perhaps not clearly stated. In the course of the study it became apparent that the entire horological industry (the nonjeweled watch and clock producers as well as the jeweled watch manufacturers) was essential to the mobilization base. In order to express this conclusion forcefully, it now appears that the emphasis placed on not recommending "special or preferential treatment" to any one company or segment of the horological industry, has been interpreted as not recognizing the essentiality of the jeweled watch industry. I regret this inference and trust that this clarifies any misunderstanding.

The mobilization requirements of the Department of Defense for jeweled watches are exceedingly low. This is the result of a sound policy to issue jeweled watches only in cases where there is an operational need for a jeweled watch. In addition, the Department of Defense, as a further means of economy, has encouraged the use of nonjeweled watches and will continue to encourage this practice. These are produced by the nonjeweled watch (or pin lever) manufacturing segment of the horological industry.

The Department of Defense does not expect jeweled watches to be the jeweled-watch industry's only basis of essentiality. It expects the jeweled-watch industry, together with the balance of the horological industry and other capable manufacturers, to the degree that they are able, to continue to design and produce very complex timing mechanisms, control devices, gyroscopes, and similar items which must be miniaturized and ruggedized if they are to be used in modern military equipment (items 1, 2, and 3 in paragraph 5 of your letter).

Certain additional information should be understood. The Department of Defense has supported the increase in tariff for watches only because this appeared to be an exceptional case and it did not appear to be at the expense of any other industry essential to the mobilization base. In general, the Department of Defense feels that the tariff policy covered by the extension of the Trade Agreements Act as represented by H. R. 1 is necessary for the greater good of the national and industrial economy, including the defense economy. No action or statement of the Department of Defense should be construed or quoted in any manner as opposition to the policy of extending the Trade Agreements Act.

I hope this reply is satisfactory and that it will clarify the Department of Defense policy as conveyed in the Department of Defense report, Mr. Pike's testimony as to the essentiality of the horological industry, and my own testimony on this subject in connection with the hearings on H. R. 1 before the House Ways and Means Committee.

At your suggestion, I am making public, through a press release, this exchange of correspondence.

Sincerely yours,

C. E. WILSON.

ASSISTANT SECRETARY OF DEFENSE,
Washington, D. C., July 1, 1954.

HON. ROWLAND R. HUGHES,
Director, Bureau of the Budget.

DEAR MR. HUGHES: Reference is made to the letter dated June 1, 1954, from the Bureau of the Budget requesting the views of the Department of Defense on a proposed Presidential proclamation entitled "Modification of trade agreement concessions and adjustment in rates of duty with respect to certain watch movements."

A majority of four Commissioners find that watches and watch movements are being imported into the United States in such quantities as to cause serious injury to the domestic industry and recommend that the President increase the scale of duties by 50 percent. A minority of two Commissioners fail to find such an injury and recommend no change in duty.

The Department of Defense is vitally concerned with the production capacity of the jeweled- and nonjeweled-watch industry to meet military mobilization requirements. This industry produces such products as jeweled watches and movements, mechanical time fuzes, and other special timing devices which are essential to the conduct of successful military operations. In view of the findings of the Tariff Commission and because of the fact that the higher rates of duties should tend to arrest the decline in domestic production this Department favors the proposed Presidential proclamation.

With respect to any evaluation of possible adverse impacts of the proposed increase in duties upon our international relations and trade, this Department defers to the opinion of other agencies having the primary responsibility in these matters.

Sincerely yours,

ROBERT TRIPP ROSS
(For the Assistant Secretary).

MR. SINKLER. Nothing that we have said should infer that we do not think that Mr. Reeves' industry is equally essential, sir.

Senator FLANDERS. Mr. Chairman, it looks as though Mr. Reeves might leave this assembly in safety.

Mr. CENERAZZO. If one studies the employment problem in the nonjeweled watch industry, particularly United States Time, in Ingham, or Westclox in La Salle, Ill., you will find the same difficulties in that employee personnel group that you find in the jeweled watch industry. As a matter of fact, it hit them 2 years before it started hitting us.

Senator FLANDERS. That leads me to my second question, with regard to the clock-type watch industry.

I did not get clearly from your testimony what the effect was on the clock-type watch. One of the exhibits you showed was that little traveling clock with the roller-top desk, which is the favorite possession of my own. I think it is a grand little clock.

What is the effect, if any, of the changes which have been made by the President on Swiss competition with that type of movement, and also of the clock-type wrist watch movements?

Mr. REEVES. Speaking, first, of the pin-lever watch, or the clock-type watch, the reduction in 1936 opened the market to Swiss pin-lever watches. I may say that those were patterned after the old Ingersoll watch.

In 1954, when the escape clause action was taken, the result was not to relieve the domestic industry from the pressure of imports, because as I pointed out, imports went up in 1955 more than 35 percent. I beg your pardon, they went up more than that over the year 1954. In other words, pin-lever wrist watches have increased since the tariff change, not decreased.

Senator FLANDERS. May I inquire whether these are what you might

call standard Swiss movements, in which the pin-lever escapement has simply been substituted for the jewel escapement, or whether they were really of the clock-type watches which competed in price with such an exhibit as you showed us here on the table?

Mr. REEVES. That is a very interesting question, because it partakes a little of both. Basically, it is my understanding that the Swiss 0-1 jeweled movement is somewhat similar to other Swiss movements, although they call it the Roskopf movement. It is a modified and cheaper version. It omits one of the train of gears. In appearance, on examination, you would find it essentially similar to the pin-lever watch in its manufacture. Its finish is not as good, its accuracy is not that of the finer Swiss jeweled movements which enter the United States.

Does that answer your question?

Senator FLANDERS. Well, yes.

You do feel yourself harmed, your part of the industry feels itself harmed—well, let me put it positively instead of negatively.

Do you feel yourself benefited in any way by the recent increase of the tariff?

Mr. REEVES. No, sir. On the contrary, we have suffered substantial harm because of the shift.

Senator FLANDERS. Because of that increase related—

Mr. REEVES. That is right, the shift.

Senator FLANDERS. To the high-jeweled watch?

Mr. REEVES. The shift in emphasis to the low-jeweled or no-jeweled watch is what has damaged us. Whether that was occasioned by the tariff increase, I do not know, but it has occurred coincidental to that.

Senator FLANDERS. Yes.

Mr. REEVES. As indicated by the chart which is again posted.

Now on the clocks, Senator, those are not clocks which come in as small watch movements, subsequently to be cased as clocks. We get some of those under paragraph 367, the watch paragraph.

Those have movements exceeding 1.5 and under 1.77 inches in width. Those are clocks that come in under 367. Clocks come in under the next paragraph, and generally the great source of clock imports is West Germany. We are very seriously imperiled by that increase which, as I say, has been roughly 100 percent each year over the year before, increasing from 195,000, I believe it was, in 1951, when the tariff reduction became effective, to over 2 million in 1955. And many of them are coming in in exactly that form. As a matter of fact, there is an Italian copy of that travel clock and some other copies of it which are very close to identical.

Senator FLANDERS. Are you making any statements or requests for presenting your case to the Tariff Commission?

Mr. REEVES. That has not occurred yet. However, it is inevitable, Senator, because the fact of the matter is, and I am sure I am not overstating the situation, that there is a knockout blow poised at this industry within the next 3 years. It comes from Swiss watches and German clocks, and I think it is not an overstatement to say that 75 percent of us might be out of business in 3 years.

Senator FLANDERS. Will you make as an important part of your case the defense importance of your industry?

Mr. REEVES. Well, of course, that will depend, sir, on what happens as a result of this hearing. Perhaps that function or determination will be taken away from the Tariff Commission, which, indeed, is not especially qualified to make it. If the Office of Defense Mobilization should make such a determination, conceivably it would not be necessary for us to go to the Tariff Commission.

However, we will put to the Tariff Commission the matter of defense essentiality for what it is worth.

Mr. CENERAZZO. Senator Flanders. I think it ought to be pointed out for the record here that the Tariff Commission, when they were hearing the jeweled and nonjeweled watch case at the last time specifically said the defense problem was not in their purview.

Senator FLANDERS. I think that is true of the law. That was the proper position for them to take.

Mr. BULOVA. I would like to point out something, Senator, that I would like to bring to your attention.

The great difficulty was, even with this tariff increase that came, that there had been a prohibition of up-jeweling by the cartel. That was the category which Senator Douglas poked fun at and said it was a matter of eyewash.

Senator DOUGLAS. I asked the question of Mr. Lazrus, and he agreed it was eyewash. So, relying on this testimony, I inquired as to whether this was not merely capitalizing on the credulity of the American public. I would be very glad to have you make a statement contrary to that.

Mr. BULOVA. That is right. Up-jeweling can be described in a very few words. It is a practice designed to evade paying the rate of duty enacted by Congress. Until September of 1954, up-jeweling was prohibited by the rules of the Swiss watch trust. In September of 1954, in direct retaliation against President Eisenhower's tariff decision, the Swiss watch trust repealed its long-standing prohibition against up-jeweling. The Treasury Department felt that it had adequate support under existing law to deal with the first types of up-jeweling which the Swiss devised.

On the fifth try, the Swiss came up with a scheme of up-jeweling which the Treasury Department felt could not be reached under existing law because of a loophole in the law which the Swiss had been clever enough to discover and exploit accordingly. The Treasury has asked Congress for legislation to plug up this loophole, and until the loophole is plugged, the Swiss will be able to export to this country watches expressly designed and engineered for up-jeweling.

How it will work in practice can also be described in a few words. A watch movement containing 17 jewels, or less, will be sent to the United States. It will pay a duty of approximately \$3. Additional jewels will be shipped in separately. They will be added to the watch in the United States, and the watch will then be sold to the American public, containing 21, 23, or 25 jewels. The Treasury will have received slightly over \$3 in duty on this watch, even though Congress has specifically provided that any watch of more than 17 jewels shall pay a duty of \$10.75. And the effect, therefore, is to evade approximately \$8.

This is the loophole which the Treasury has asked Congress to plug.

Representative BOLLING. Thank you, sir.

Dr. Ensley, do you have some questions?

Dr. ENSLEY. Mr. Chairman, I would like to ask one question.

We are all impressed with the need for skilled, precision workers. I am wondering if there are any alternatives to assure the availability of such skills other than through high tariffs and import restrictions?

For example, we are spending approximately \$35 billion a year for defense, and substantial amounts of that \$35 billion are going for the purchase of precision equipment for the armed services today and for maintaining the technological development of the armed services.

Are not the people currently engaged in filling those contracts providing and developing the skills that would be needed in case of an all-out war, or at least the nucleus for such skills?

Mr. CENERAZZO. Mr. Chairman, can I answer that?

Representative BOLLING. Certainly.

Mr. CENERAZZO. First, I think skill requires day-to-day use. Our experience in the watch industry has been that if you take a person off of the assembling of watches, say, or the setup man is transferred to another department and you leave him there 2 or 3 years, even though he may have had 10 years' experience in the previous department, when he comes back, because of the technological improvements, the automation, the other changes that come in, you practically have to have a new indoctrination period that might take from 4 to 6 months before that person has a feel for the job again. In other words, it is much like a lawyer who has been practicing law and then does not practice for a number of years and comes back to try.

In addition to that, I would like to point out to you that we take employees from plant No. 1, Elgin, transfer them to plant No. 2. We had to put a provision in the contract by negotiations on taking plant 2 people and transferring them to plant No. 1 unless they were competent to perform the work, because when they go into the plant No. 1 on watch work, they became hopelessly lost. Then we had the problem of incompetency to contend with.

Now this question of skill that you are talking about to bring in other products—this has been done at Waltham. You have the gyromatic. Everybody at gyro has been taken out of the assembly department. If you check the seniority list, you will see, from the background of every person on the assembly of gyro, the more technical jobs, that they have come out of assembly. Yet, you take those people today and try to bring them back on watch assembly and you will have your hands full for at least, I would say, from 4 to 6 months to get them back into the swing of things.

Dr. ENSLEY. My question is precisely along those lines.

Do we not have employed in the areas of defense, the key skills that you would need to expand in case of all-out war?

Mr. CENERAZZO. The answer to that is "No."

Mr. BULOVA. I know exactly what you mean, Dr. Ensley. We can only quote from our own experience and what we are actually doing. There is no great production volume in any particular specific part that goes into a guided missile. You develop a piece and you make 100 of them and then maybe you make a thousand. I do not think in the last 3 or 4 years we have had over 1,000 at a time of this type mechanism or anything of this type, and we handle it and carry it along right with our watch work. If we did not have watch work, we could not carry it at all.

Now on the other hand, some of these mechanisms we make are very

complicated. If, instead of a thousand, they needed a million of them, we could not make them. We do not have that kind of production facilities. We have not enough of those skilled people that could make a million of them. However, there is no call for them because Defense is not stockpiling those kinds of devices because of the influx—the continual new development and improvement that takes place—and, therefore, there are no quantity production items. So, it is handled right along with our watch production.

MR. CENERAZZO. I would like to amplify, if I may.

The people, who were normally producing watches at Elgin, jeweled watches, hack watches, and so forth, prior to 1942, these were people who were on production on a productive basis when the company was producing one-million-some-odd-thousand watches a year. When we set up the chronometer division at Elgin, you had to take the cream of the crop and put them up there, and until you could get into production, it took almost a year's time to go ahead and get the specific changes and blueprints and so forth in order to produce that product. Now these are all competent watchworkers, able to make high-line piecework, and when you transfer them over, because it was a new job and new technique and new manufacturer, it almost bogged down.

Now the thing that has to be brought out is that we are allowed, by union contract, at least 2 weeks of average earnings when people change, to cushion the shock, when a person changes from one type of work to another type of work in a watch factory.

We have some people who produce as many as 2,000 pieces an hour. I mean, you try to handle some 2,000 pieces in an hour sometime and see how fast you are moving. And some of them are semiautomatic and semihand jobs. I think it is the repetitiveness of it that gets the production up.

And Uncle Sam is no Santa Claus when it comes to giving contracts to the watch industry. You bid competitively in order to get them. I do not know of any cost-plus contract awarded to the watch industry during World War II. It was all on a competitive basis.

The thing I am trying to bring out is that, on this theory, you can go ahead and bring out substitute products, which Elgin, Hamilton, and Bulova, and the rest of them are trying, to establish substitute business to protect themselves against the day when there is no jeweled-watch business. But there is no substitute for preserving the skills you need for jeweled mechanisms other than the making of watches.

The issue that is involved here is my country; the issue that is involved here is your country, and that is the essentiality of this industry to national defense. Where do you get the tiny mechanisms in time of war?

The only way you are going to get them is to have, in my opinion—and I think ODM was wrong when they said 2 million, it should have been 4 million—a watch industry of at least 4 million in this country.

I used to fight with Mr. Bulova because I did not like him being a Swiss importer and an American manufacturer. But when he went into full-scale American manufacture, my respect went up to him greatly for it because he was giving a great contribution for America. And I think that is the point of this: Is it essential to national defense?

Ask this committee or anybody else where you are going to get it

in time of war, the time that makes America run. You have to have it in civilian time and you have to have it in wartime. Everybody knows how important time is.

Representative BOLLING. Thank you.

Mr. MOTE. I think I could make a contribution to the answer to that question, Mr. Chairman.

On a commercial basis, the tiny watches that are being made today are still the smallest product that is being made. That was one purpose in exhibiting to you some of the material and parts that go into them. And it is the know-how that results from the continuous manufacture of that tiniest of commercial products day in and day out that is important to all these ancillary or related activities. Once you lose that, you do not perpetuate that know-how by working on the other items that you mention, Dr. Ensley.

You can only perpetuate that adaptability by working commercially on the very tiniest of these commodities.

Representative BOLLING. Thank you.

Dr. Sheldon, do you have some questions?

Dr. SHELDON. We are all conscious that the hour is late, so I will try to keep these questions short, and I hope that the answers can be adequate but fairly brief. The first is a series of questions related to each other, and for convenience, I will address them to Mr. Sinkler.

I understand that in Switzerland there is quite a bit of standardization and interchangeability of watch parts simply because there are so many small shops involved in the production of these various components. My first question is: To what extent have the American jewel-lever watch people tried to standardize the components to the point where perhaps certain screws and maybe escapements and so forth could be used either in a Hamilton watch or an Elgin watch?

Mr. SINKLER. There has been no standardization between the watch companies in this country, that I know of. It is quite true that in Switzerland they are standardized. Our own product, and it may be true of the others, is standardized on Swiss standards so that from time to time we could supplement our own production by the purchase of the standard Swiss screw, for instance, and standard jewel sizes. But we have never, up until now, so far as I know, sold back and forth to each other or produced anything for other American watch companies.

Dr. SHELDON. Mr. Sinkler, my second question is this: Would it add to the defense value of the United States jewel-lever watch industry if there were some interchangeability so that in the case of damage to facilities at one place in the event of war, it would still be possible for a remaining plant to supply components that could be combined with what originally came from the destroyed plant?

Mr. SINKLER. I am sure that there could be real advantages to that. A good example of it was a very complicated elapsed time clock that was produced by Elgin and Hamilton during World War II, where we had standardization of parts. We made what we were best equipped to make and Elgin did also. Both plants assembled. For military items, where standard specifications can be drawn, I would strongly recommend the standardization and interchangeability of parts among the industry.

Mr. CENERAZZO. I would also like to point out that there are parts

right now that are interchangeable—not whole movements, but there are many parts.

Mr. BULOVA. That is right. And I would say this, that we find our escapements almost identical with those that are made at Elgin. It might interest you to know that the Bulova Watch Co. in Switzerland has been quite responsible for the standardization of that industry. I helped to spread standardization to that particular industry.

There are certain things we hesitated to work on together in the United States because of our antitrust laws, and that is one of the deterrents we have to working in close collaboration.

Mr. CENERAZZO. I would like to point out, too, that in his plant he has Swiss watches that he was sucker enough to buy. He has 50 people in the service department right now, and most of them spend their time fixing Swiss watches, not American watches.

Dr. SHELDON. The final part of my question is for Mr. Sinkler: Does the domestic jewel-lever watch industry give any encouragement at all to small firms to supply subcomponents, or has their entire effort been to develop integrated plants? Would there be any advantage, in terms of making more widespread, people available with some of these special skills in such short supply if the domestic watch manufacturers were willing to buy, to a greater extent, components for their watches?

Mr. SINKLER. Unfortunately, to diversify our sources of parts is virtually impossible in this country because the only machines and equipment, the tools and dies to produce those parts are in our own plants. We are completely integrated. There is no place we can turn to supplement our production or to find a cheaper source except to Switzerland.

Therefore, it is impossible, and I do not think anyone in his right mind would try to go into the business with the sales curves of domestic watches going down so sharply. We are completely dependent upon ourselves.

Mr. CENERAZZO. Another point is, under our seniority in the watch industry, we now take code numbers and put them beside the employees. So, when they are transferred from one department to another, there is a continuous record kept of all the jobs they have had. So, if an employee is shuffled off a particular job, he is always available to bring back because they have that code number beside their name.

Mr. BULOVA. I will give a little elucidation in regard to small watch manufacturers in Switzerland. I just want to tell you those are not manufacturers at all, they are just assemblers of watch parts. They make nothing. They buy the complete construction of the movements, the wheel trains and setting mechanisms from the trust, they buy the escapements from the trust, and they buy the jewels from the trust. All those things come in from others in the trust.

They call themselves watch manufacturers; we call them just finishers. Of course, they put them together, buy their dials and do that.

Now, in this country we have never had that type of industry. Of course, the trust, itself, controls the price and also controls the selling price of that little assembler of the parts he buys, whether it is a thousand or whether it is 5,000, whether it is 10,000 or 20,000. He is really not a manufacturer, he is just an assembler in the true sense of the word.

If you want to see manufacturing, you have to visit our plant, or Elgin, or Hamilton, where you see that we make, what the trust makes, we make the bridges, the plates, the dials, the component parts, which we could possibly send outside for someone else to assemble. We will be glad to do it. We will be glad to furnish it now to anyone who would want it, because that would give us extra production. But there is no assembler in America that could compete with Swiss prices in buying parts we make here at our cost, because our parts, which are made in the exact same manner as we make them in Switzerland, here cost us 3 or 4 times more, and the difference is only in labor.

Dr. SHELDON. Thank you very much.

Senator Douglas raised the question of jeweled counts. I am hoping we will not be diverted to discussing upjeweling again, but I do want to repeat a question which was asked some of the importer representatives yesterday.

Just to pass the honors around, let me turn to Mr. Mote. What is the importance of having 21 or 23 jewels? Does this add to the time-keeping quality of a watch?

Mr. MOTE. Well, I think perhaps I should defer that question to Mr. Sinkler who came up through the manufacturing division. I am somewhat in the position that Mr. Reeves is in, and I am not educated technically in the watch business and he is.

Mr. SINKLER. In a large watch, railroad size, the extra jewels have a very measurable effect on initial performance. In a man-size watch, the improved performance is also measurable to jewel count initially, but not to so great an extent. In the lady-size watches, where it is so small and so subject to external influences of all kinds, it is very difficult to measure any change in performance initially between, let us say, a 17-jewel or 21-jewel watch.

However, later in service, a year afterward, 2 years afterward, 5 afterward, the watches containing the extra jewels have a finer performance because wear and tear on the small parts is reduced. So that we feel it is definitely worth it, in a product such as ours where people wear it for years. Unfortunately, although we are trying to persuade them to turn them in, they hang onto them year after year. But later in the life of the watch the performance is improved by an increased number of jewels.

Dr. SHELDON. I have one final part to that same question: Are the watches that hold the highest prizes for their quality, ones with very high jewel counts?

The Swiss, for example, hold these competitions with various watches. Some of the importers advertise on the radio, "The world's most honored watch"—isn't that one slogan we have heard? Have they gone in for very high jewel counts in their prize-winning watches?

Mr. SINKLER. The prize-winning watches—I would have to look in detail to see what the jewel count would be.

The jewel count for a prize-winning performance at an observatory is not a criterion of the quality. A marine chronometer, which is the finest timepiece of all, has 14 jewels in it. That is because of its unusual construction.

A deck watch, which is a large watch, and which is also a prize winner, may have another number of jewels, depending on what the maker thinks is important for the test.

Let me remind you that those tests only run for a matter of 2 or 3 weeks, and we are talking about years and years of service. The jewel initially does not improve performance so measurably that you cannot get performance with a low jewel count if it is very carefully assembled and very carefully selected jewels are used where they are needed. The number of jewels does not determine performance, it is the workmanship and every single part that goes into it.

If you ask me, as a watchmaker, can I make a 17-jewel watch perform as well as a 21-jewel watch, I would answer that for a period of 3 or 4 years I think I could, but not for a longer period of use.

Dr. SHELDON. Thank you very much, sir.

Mr. BULOVA. I would like to comment on that. You might very well ask yourself why the American watch manufacturers go into the production of 21-jewel watches or others over 17 jewels. The answer is very simple.

The over-17-jewel watches have a high rate of duty. We were forced into that category of watches because it had that high duty on it until the Swiss nullified it by rescinding their ban on upjweling; and the Swiss importers are about to destroy that end of the high-priced business by bringing in 17-jeweled watches in which, later, the other 4 jewels could be put in. So, it destroys the protective tariff on the 21-jewel watches.

So the American producers decided several years ago, if they were going to stay in business, that they should manufacture higher jeweled watches and leave the entire 17-jewel market, in a lower-priced field, to the Swiss. Unfortunately—this applies to watches as it does to clothes—more people buy suits for \$75 than pay \$150. So, we have a thin market at the higher price level.

Representative BOLLING. Thank you.

Mr. CENERAZZO. I have a point that ought to be brought out here.

Fifteen years ago, when I first came into the industry, we had 7-jewel and 15-jewel watches being manufactured, and the bulk of the production was in the 17-jewel field. At the end of World War II the 7- and 15-jewel disappeared completely. The 17 jewels started disappearing, and you got into the 19-, 21- and 23-jewel field.

The point Mr. Bulova, I think, is controlling except that I think Elgin and Hamilton and Waltham felt that the advertising value on long-range performance on the 21-, 19, and 23-jewel movements would better satisfy customers, so they took advantage of the fact they could produce better running watches and have a better effect on the public than the Swiss importer who sold a 17-jewel watch to a lady, who 6 weeks later brought it back and was mad because she could not get anything done about a guaranty. They thought they were selling long-range performance.

Dr. SHELDON. My final question is addressed to Mr. Reeves: To what extent does the pin-lever industry depend upon imported parts, or does it depend upon engineering, design work, or tool work done abroad?

Mr. REEVES. Very little, if any. I would have to make a check within the industry. I believe that except with respect to a few hair-spring parts, which are purchased by some companies, not by all—and I think those are domestically produced.

Actually, I cannot answer your question, but I will supply it for the record.

Dr. SHELDON. Could you check and see whether the General Time Co. has had engineering work done abroad?

Mr. REEVES. Let me ask Mr. Budlong.

Mr. BUDLONG. I can answer that. We are completely integrated on the pin-level watch we make.

Mr. REEVES. I think that is generally true throughout the industry.

Mr. INGRAHAM. We are in the same position, we make all of our parts or purchase them.

Mr. REEVES. Mr. Patterson?

Mr. PATTERSON. We are completely integrated.

Mr. REEVES. The answer, then, is "No."

Representative BOLLING. Thank you very much for your patience. Tomorrow our hearing will be held in room P-38 in the Capitol, in the Senate District Committee room.

(Whereupon, the committee adjourned at 1:05 p. m., to reconvene Thursday, June 7, 1956, at 10 a. m.)

DEFENSE ESSENTIALITY AND FOREIGN ECONOMIC POLICY

THURSDAY, JUNE 7, 1956

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON FOREIGN ECONOMIC POLICY,
JOINT ECONOMIC COMMITTEE,
Washington, D. C.

The subcommittee met, pursuant to recess, at 10 a. m., in room P-38, United States Capitol Building, Washington, D. C., Hon. Richard Bolling (chairman of the subcommittee) presiding.

Present: Representative Bolling, Senator Flanders, and Representative Talle.

Also present: Grover W. Ensley, executive director; John W. Lehman, clerk; and Charles S. Sheldon II, staff economist.

Representative BOLLING. The subcommittee will be in order.

This is the final day of the current public hearings on defense essentiality aspects of foreign economic policy. On previous days we have had a general background discussion of the main issues, and then the statements of particular points of view from the importers and from the domestic producers of watches. Their advocacy of particular viewpoints is perfectly reasonable from their vantage, but leaves much work for the subcommittee to do in analyzing and testing the arguments and facts presented.

The session scheduled for this morning may shed some light on limited parts of our problem. The real question which we are seeking to explore today is what kinds of close tolerance in miniature production are required to fulfill defense needs, and what range of companies can be expected to deliver good quality products under emergency conditions in time to meet defense needs.

We doubt that this question can be answered in a morning. The participants in today's panel, however, will essay to give us at least a part of the answer. Yesterday the domestic watch producers demonstrated that they are capable of doing some very fine work. This is a talent which this country needs. But at the same time it is important to attempt to learn whether similar skills exist elsewhere in our industrial system, and whether measures can be taken to broaden these important alternate sources of skills for better protection of the national interest.

One participant will not be able to join us until close to 10:30, so we will start with those present and hear from the missing member when he arrives.

Our first witness is Mr. C. Harry Kalquist, vice president and treasurer of the Moser Jewel Co., of Perth Amboy, N. J. Our earlier discussions have touched upon the importance of jeweled bearings and

the dangers of dependence upon foreign sources. We also heard of the Indians of Rolla, N. Dak., who have been trained to produce some of these needed items. Mr. Kalquist's experience should be a useful addition to our panel this morning.

Mr. Kalquist, we are happy to have you with us, and you may proceed as you wish.

**STATEMENT OF C. HARRY KALQUIST, VICE PRESIDENT AND
TREASURER, MOSER JEWEL CO., PERTH AMBOY, N. J.**

Mr. KALQUIST. Mr. Chairman and members of the committee, I am pleased to appear today in response to your invitation to discuss briefly the present status and future outlook of the jewel-bearing industry in the United States.

Perhaps I should clarify, at the outset, the fact that there are two basic categories of jewel bearings: Those that are used in watch movements and those that are used in fine precision instruments. While there are general differences in size and design between these two categories, it is undoubtedly true that any jewel-bearing manufacturer could produce either type, since both are machined in the same manner and require the same degree of precision.

One major difference between watch jewels and instrument jewels, of significance from the standpoint of national defense, is the fact that watch jewels are generally standardized as to the sizes and shapes whereas instrument jewels vary considerably. As a result, the production of watch jewels presents a somewhat simpler problem—in fact, it would be an easy matter to stockpile mobilization requirements of these items.

Instrument jewels are, of course, the types that are of greatest importance from the standpoint of national defense. There are possibly seven or more manufacturers of instrument jewels in the United States, who are in no way connected with the jeweled-watch producers. I might add that, while I am testifying solely for my own company today, I believe that the views I am expressing will generally represent the position of the jewel-bearing industry.

I hope you gentlemen will understand that, while admittedly many improvements can be made in the domestic jewel-bearing industry, this country does not face an immediate or a potential crisis in jewel production. The situation today is far different from what it was at the beginning of World War II when there was truly a desperate shortage of jeweled instrument bearings. Perhaps I can best illustrate this fact by referring to the operations of my own company.

Moser Jewel Co. began production in 1920, using Swiss machinery and methods. Gradually, we developed improved machinery of our own design, and had it built in this country. When World War II struck, however, we were still a very small firm with limited equipment and personnel.

As a result of wartime expansion and other factors, we now have a modern plant with a work force of approximately 200 employees and we are supplying industry with many millions of jewel bearings per year. In addition, we have the ability to expand rapidly. We have additional machines in standby storage, and know of several United States tool plants capable of duplicating our equipment if necessary.

We could also double our work force and train it in about 6 months, using techniques developed in World War II. Finally, there is an abundant domestic supply of the necessary raw material for the jewels—artificial ruby and sapphire. Thus the machinery could be installed, raw materials procured, and necessary personnel trained in relatively quick time.

I would like to digress here a moment, please.

We are also making, and in large quantities today, carbide bearings for gyros and other aircraft instruments. We have been very successful in using those bearings. We also have a plastic bearing that looks very good, and, of course, the glass bearings, that we used in the war, are used in greater amounts today, and in any emergency that could be expanded very rapidly.

I was talking with a chief engineer of one of the large aircraft instrument manufacturers, and he was telling me that they had some very fine machinery that they developed during the latter part of the war for glass ring bearings for a certain type, weight of instrument, and he has the drawings and is going to turn the drawings over to us so that we may explore that field as another product for bearings for the aircraft industry particularly.

In addition to the ability to expand rapidly, which the United States jewel producers possess today to a far greater extent than in 1941, there is another important advantage to the current situation. I refer to the stockpile program. While it is not practical to stockpile finished industrial ring jewels, except in a few of the most commonly used shapes and sizes, it is entirely feasible to stockpile many years' supply of semifinished products. Such a stockpile of semifinished items would greatly diminish the time and effort necessary to turn out finished jewels according to various blueprint specifications. I might add that in my opinion this aspect of the jewel stockpile program is being neglected at the present time, as far as I know.

I would like to digress here, too. What makes me think that this is an important part of the program is when the war came in 1941, we had an inkling that something might be happening, and we brought over from Switzerland 500,000 or more ring stones with just a hole through them. When we had to produce the aircraft bearings, it was a simple matter to ream them up to size, the sizes we needed.

I think instead of stockpiling jewels to specific sizes as far as instruments are concerned, it is wrong, because I have not seen an engineer yet who will agree with another one as to what size they want to have. And it is a very simple matter to take a stone that is already drilled and ream it very quickly to the proper size. That is what we did at the start of the war, and that is why we were able to turn out as many bearings as we did.

Now I do not want to give the impression that the instrument jewel-bearing industry of the United States is in every way so healthy, vigorous, and growing that it does not need assistance, because this simply is not the situation. While there is considerable jewel production capacity in this country, and an opportunity to expand, the Swiss jewel producers do have a competitive advantage over us, based in large part on their advanced technology. The Swiss have concentrated on jewel manufacturing through the decades and have made

steady and substantial engineering improvements. While my company and others have tried to keep pace with these developments, it is my candid opinion—based on visits which I make to Switzerland each year—that they are still far ahead of us in their manufacturing techniques and know-how.

However, the United States jewel bearing producers have some advantages. For example, we are usually able to make more prompt delivery, eliminate waiting periods, avoid waste of time, thereby giving our customers greater flexibility in service. For this reason, I believe that America's leading fine instrument manufacturers would prefer to deal with American jewel bearing manufacturers in many cases. Now, I want to say, too, that the carbide bearings and plastic bearings seem to promise a lot for the aircraft instrument manufacturers.

In my opinion there are several steps which the Government can take, particularly in view of the fact that there is a widespread agreement that the maintenance of a healthy jewel bearing industry is important to our national defense.

For example: The Government should grant additional research and development contracts which will lead toward the improvement of technology in the jewel bearing field. Improved engineering and design techniques would inevitably allow us to cut costs, both through a greater reliance on automatic machinery and through a shorter training period for our work force.

I think it will be helpful to the general defense preparation if consideration were given to awarding such contracts to the firms who are now in the business of producing jewel bearings for instruments, such as our company and the others whom I mentioned earlier in my testimony. We had an outstanding record in World War II, and received many official commendations for our defense performance. We received three Army-Navy merit awards, and we have many letters from people we supplied with bearings during that period. I am convinced that instrument jewel bearing manufacturers can make a substantial contribution to future defense efforts if they are granted this type of research and development aid.

We are working at the present time with the Newark College of Engineering on some data that is very helpful. We are trying to get a research project, if we can, along with them. You see, we are asked all the time about load factors on jewel bearings, the friction values, the breakaway and so forth, and thus we think a project of that type would help in any effort made toward solving the problems in a very vital time of war. The professors at Newark Engineering College are willing to cooperate with us, and at the present time we are trying to get a research project and hope that we can. I think it would be very valuable.

As I have previously indicated, I am in favor of stockpiling jewels, but I hope that due consideration will be given to my suggestion of stockpiling semifinished ring jewels. I would like to see the Government adopt the practice of inviting my own firm, and the other instrument jewel bearing firms, to bid on contracts for stockpiling. This would certainly provide an incentive for us to improve and modernize our present production and finishing facilities.

In conclusion, I trust that my appearance here has contributed to help the committee in its deliberation on this problem. I trust that

I have made clear that there is a separate jewel bearing industry in the United States, set up to supply and equip the manufacturers of precision instruments. Secondly, I point out that we have had many years of experience and are well qualified to understand and work with basic engineering problems of precision instrument manufacturers. Thirdly, I believe that we should be given due consideration in any program devised to increase America's self-sufficiency in jewel bearings. And, finally, I think we should be considered as a separate problem from that of the watch jewel bearing industry. We are, in fact, quite separate from the watch industry, both in the United States and in Switzerland, and the industry which I represent does not rely upon the watch industry for either technology or equipment in any way.

Representative BOLLING. Thank you very much, Mr. Kalquist. Our next witness is Dr. Charles S. Draper.

Dr. Draper took his doctor of science degree at M. I. T. in physics. He has had a distinguished career in research, much of it of military interest. In the 1920's he ran a laboratory to develop infrared signaling devices for the Navy. He has been a full professor at M. I. T. since 1939, is head of the Department of Aeronautical Engineering, and director of the Instrumentation Laboratory. He has been awarded various prizes and medals for his contributions in research, including antiaircraft fire-control equipment. He has been a consultant to both Government and business, including the Waltham Watch Co.

We are happy to have you with us to discuss these problems of alternate sources outside the watch industry for microprecision manufacture. You may proceed as you wish.

STATEMENT OF DR. C. S. DRAPER, HEAD OF DEPARTMENT OF AERONAUTICAL ENGINEERING AND DIRECTOR OF THE INSTRUMENTATION LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Dr. DRAPER. Thank you, Mr. Chairman, it is a matter of considerable interest for me to appear here and to have an opportunity to discuss the viewpoint of a working engineer who has no connection at the moment with the watch industry and who is concerned primarily with making devices for the Government. I may say that I represent myself and have no connections with any company as far as this is concerned.

I understand that the purpose of my appearance before this subcommittee meeting is to present the viewpoint of an engineer working in the field of measurement and control. My qualifications for discussing anything connected with the watch industry are not based on a detailed knowledge of written agreements, laws, or statistics, but rather depend on some years of intimate contact with the design and manufacture of high-precision mechanical devices, including watches, and with men who have elected to devote their lives to this field.

In order to understand the present, I think it is worthwhile to look a little bit at the past. Therefore, I have a short review of the background of the watch industry as I have seen it, and since it is quite short, I will read it.

The watches of American design, put together by superbly skilled American workmen from parts made on American-designed-and-built

automatic machines, led the world during the latter part of the last century and the opening years of the present century. During a period of roughly 50 years, the American watch industry has passed from its former high place to a level where it is not only unhealthy but for some time has been forced to engage in a never-ending series of battles for life itself. The detailed reasons for this situation are many and complex, but in the last analysis rest on the hard fact that high-quality watches are produced abroad with costs less than the costs of making similar units in the United States. This means that the domestic watch industry must receive assistance if it is to regain and hold the position of a useful and healthy part of the American economy.

The problem of protection for the high-quality watch industry, which is often described as the "jeweled" watch industry, does not deal with a situation that is all white or all black. For many years, the domestic industry depended very largely on parts that were cheaper to import than to manufacture in this country. This led to regulations with low duty on watch parts and low-jeweled movements, but which imposed high duty on high-jeweled movements and completed watches. As a result of this situation, a number of companies achieve returns from selling watches with foreign movements that are "cased and timed" in this country. Because the duty is a factor of primary importance in determining the possible profits from competitively priced watches, the pattern followed in packaging items for import has been set by the letter of the law rather than by the intent of the rules or purely technical considerations. Particularly in the field of lower-jeweled watches, the practices used have been beneficial in that they have made it possible for the public to buy good watches at prices less than they would otherwise have been required to pay. It is also certain that the manufacture of all high-grade watches in America would have been and would be today greatly handicapped without the availability of imported jewels as separate items under reasonable duty. From this, it appears that the domestic industry has been and still is dependent to some extent on the products of foreign manufacturers. As far as high-jeweled watches are concerned, the amount of this dependence has decreased during recent years, but continues to exist because of the jewel situation.

The survival of the American watch industry in the face of foreign competition must be considered against the background outlined above. It appears that the fundamental question to be answered is whether or not the manufacturing of high-quality watches is to be a healthy component of our economy. This question must be studied in terms of the contributions made by our watch companies to the peacetime prosperity and the wartime safety of a United States that must live in the modern world. Living in this environment means that we have to deal with countries made up of men having all the motives and reactions to be expected of human beings, so that we must continually keep our guard up in supporting our industries well enough to weather any emergency that may arise to disturb our national existence. It is my opinion that the watch industry is an essential element of our industrial system in both peace and war and should be given whatever support is necessary to insure its good health. Giving up all pretense of maintaining the domestic watch industry

in peacetime would eliminate competition and invite the final establishment of a foreign monopoly in complete control of our supply of jeweled watches. History provides many examples of increased cost that the consumer must bear when effective competition is eliminated from the sources of supply for any necessary item of commerce. The success of the American way of life depends to a considerable extent on the prevention of absolute monopolies in widely used articles. The watch industry should be no exception to this rule.

Modern warfare, whether of the "all-out" or the "brush-fire" variety, is dependent on very close timing of the actions of cooperating organizations. This means that almost all individuals in the Armed Forces must have good watches and that the attrition rate of these watches will be correspondingly high after action begins. This situation will be especially serious for the very accurate timepieces that are essential for the precise navigation of moving vehicles on the land, on and under the sea, and in the air. It may be argued that any future war will be over in such a short time that only stockpiled watches will be useful and no manufacturing backup could help the ability of our country to defend itself. This statement is certainly not true for "brush-fire" wars and would also probably not hold for the "finishing-up" phases of any all-out war. If America allows herself to be caught in a position of entire dependence on watch imports that may be cut off by an enemy, severe handicaps would in all probability be imposed on our fighting forces.

In addition to the high-quality timepieces it produces, the watch industry provides a great capability for manufacturing the small parts of high precision that are used in the instruments and controls for our aircraft, ships, guided missiles, fire-control systems, and other modern defense devices. This ability to manufacture small parts depends on the fact that the watch industry has carried its methods and equipment to a very high degree of automation. Many of the items involved are imported, but American designers have recently begun to introduce new ideas in production facilities. With the automatic machines that they have available, watch companies are able to quickly start quantity production on small precision parts for other industries, in the case of an emergency, while still maintaining a reasonable output of watches for military requirements.

It may also be argued that an American watch industry in being is unnecessary because personnel and equipment could be shifted from other areas to immediately start up watch production lines from scratch. In my opinion, this is a false hope, because no other industry requires the same abilities and training as those that are necessary to set up machines for manufacturing watch parts and to supervise the personnel in assembling and finishing watches.

On the basis of past experience with watch production facilities, it is to be expected that, beginning with an empty plant, 2 to 10 years would be required to place an assembly line for high-quality watches in effective operation. The variation between these estimates depends on how much of the necessary equipment exists in storage and how many men with previous experience in watch-factory work can be found. The short time of 2 years for beginning operation could be achieved only by drawing together resources in equipment and personnel from recently shut-down plants. With both machines and people from previous watch-manufacturing organiza-

tions dissipated, it might well take all of 10 years to realize high-quality watch production in any reasonable quantities. The truth of this statement may be measured in terms of the experience of England, where the fine watch industry was allowed to die and is only now being brought back to healthy existence after the expenditure of much effort, money, and time. I wish to enter my plea that we do not force the American watch industry to undergo the sad experience of its English cousin.

Representative BOLLING. Thank you very much, Dr. Draper.

Our next witness is Dr. Duncan E. Macdonald. Dr. Macdonald holds a Ph. D. in physics from Boston University. He is former head of the department of physics and presently dean of the Graduate School of Boston University. He is former director of their optical research laboratory. He has taught or done research at a number of universities, including Harvard and M. I. T. He has been a frequent consultant for the Air Force, particularly on development planning. He is the author of many technical papers.

Dr. Macdonald, we are happy to have you with us, and you may proceed as you wish.

STATEMENT OF DR. DUNCAN E. MACDONALD, FORMER HEAD OF THE DEPARTMENT OF PHYSICS AND PRESENT DEAN OF THE GRADUATE SCHOOL, BOSTON UNIVERSITY

Dr. MACDONALD. Mr. Chairman, Senator Flanders, Representative Talle, and gentlemen, first I would like to apologize to you and the committee for not being able to submit this report, or a copy of my statement, in advance of this session. The pressure of schedule, including our commencement weekend just past, has made this a physical impossibility, and in truth, the statement now in your hands is all too fresh off the dictaphone. I would like to take the liberty to make certain minor revisions as I proceed. I should like to add further that this is my own statement, that no one in this room, or elsewhere, has seen this prior to this morning, nor advised nor been advised as to its contents.

I should like at the outset to take a few moments to define the pertinent background on which I appear before you. I speak as an individual, not for my university, and yet my experiences are those of a university man. These experiences have included nearly 10 years as director of an optical research laboratory dealing with problems of aerial reconnaissance from which post I resigned a year ago in the interests of maintaining some balance of personal output between creativity and administration as dean of Boston University's Graduate School.

In this role as research director I had over the decade, faced problems calling for developing the proficiency of skilled craftsmen for prototype fabrication of the highest precision in optical equipment. In turn these craftsmen have been surrounded by engineers and research scientists in a fairly broad complex of fields, including physics, chemistry, biochemistry, psychology, geology, geography, photography, and others.

During these same years I have been accorded, most graciously, by the United States Air Force with an ever increasing entree to military thinking and planning, and for the past 3 years I have served on the

Scientific Advisory Board to the Chief of Staff of the United States Air Force in the field of reconnaissance.

Now this range of experience defines and limits the scope over which I am qualified to comment on the need for preservation of skills for our mobilization base. From this you may correctly infer that I am anything but an expert in those fields of your primary concern. The best that I can hope to contribute is but few general observations.

In this I should first like to discuss the concept of a mobilization base. This concept has changed as weapons systems have changed. The thinking that relates to a mobilization base of the style of World War I or World War II is at best somewhat archaic. As we today align our military force in what is popularly termed a deterrent posture, we have become committed to the concept of fighting a major war with that which is on hand at the outset of the conflict. One only needs to view the area of effectiveness of present weapons, the delivery capabilities today and of the immediate future both in terms of quality and quantity coupled with the history and present capability for defense against aerial weapons to fully substantiate this conclusion.

It is then that our mobilization base for strategic warfare can only be considered in the present tense. It exists now and it concerns the military effort and the weapon development which we are now doing. It shall continue in this present tense so long as armament continues to develop unrestrained by international inspection and control. Under the concept of total war, which I must insert, is the type of war we can least afford to lose and the world can least afford to allow, the thought that manpower skills must be preserved and protected in order that they may become available for industrial mobilization is obsolete. The preservation and protection of these skills is not by projection into the future but rather can only be considered as applied to our national defense effort today, as mobilization is functioning today. The judgments must pertain to the effectiveness of our present weapon development within the going industrial program.

You have been presented conflicting testimony as to what constitutes defense essentiality. You have been presented conflicting testimony on the nature of the essential elements of both defense and non-defense industry that must be held ready for conversion in a national emergency. In addition the role and function of stockpiling has come in for considerable attention.

So related to this principal point of my testimony one might suggest that perhaps these conflicts have occurred because the thinking has been based too often upon the traditional concept of the mobilization base. With this traditional concept one must project ahead to determine needs in the event of national emergency. The projections themselves must leave broad room for eventualities and in this conflicts must arise. In the concept of modern warfare with modern weapon systems the decisive combat phase of a strategic war will be over before any industry can be converted or before any stockpile of components can be assembled.

Thus to summarize this first point—the important war—the war we absolutely cannot afford to lose—the total or strategic war will be conducted entirely with the weapon systems on hand at the outset. The concept that we must preserve essential skills for conversion to

defense programs in the event of national emergency is—for this type of war—obsolete.

I shall go further in this testimony to present later an argument for the case that the national emergency exists now and that the decisive phase may well be concluded before combat begins.

Now there are two types of tactical situations that may occur. First, after we have gone through the decisive phase of a strategic war which, I must again emphasize, is the phase we cannot afford to lose, that war may degenerate to a tactical situation. The second possibility is the Korean type of operation, the limited or peripheral war.

In the first case, if we have won the decisive phase we are in good position for the tactical followup. The total picture of devastation that this entails, however, defies any logical development of a pattern for mobilization requirements.

In the second case, which many believe is the most probable situation in our times—a belief which I cannot share—the mobilization base plays a significant role.

As we must infer from the first point, the concept is that the mobilization base is in operation now, that industry is converted to defense work. It is here, from the functioning base in existence that effort may be diverted in the tactical emergency and by being tactical the implication must be that sufficient time will exist for new armament development.

From this point I should like to move to the discussion of professional skills that one requires for this mobilization base. In one sense my area of interest has been in research pertaining to a precision industry, microscopic precision, but dealing with a static type of equipment rather than the dynamic equipment of, say, the watchmakers. Therefore, I cannot profess to be well versed in the problems of dynamic precision, but I would hold that certain generalizations must apply.

The key to protection and preservation of skills applicable to precision industries must lie with top level personnel, top level scientists and engineers, those very areas where already we feel keenly the shortage of manpower. It is clearly important, insofar as possible, to keep existing teams or groups together and active if we are to improve and grow within each and every industry into the era of so-called automation.

I want to digress for a moment to say that automation is not suddenly upon us, but rather it is a new word that describes an old trend. We have been creeping into this for years and we shall continue in the years ahead to move in this same direction. As we look back through the history of industry we see that each step of automation has resulted in better workmanship, more profits, more jobs, and higher standards of living, that each step has been for the general welfare. Starting as far back as perhaps the cotton gin, exactly the same type of arguments have always been presented against the case of automation. From labor came the expression of fear of loss of jobs a view which is now modified in many quarters by an enlightened understanding. From industry comes the expression that automation is good yet followed by altogether too much reluctance to invest so-called risk capital. I would offer here the observation that very frequently this latter rests fundamentally upon the failure of the non-

researcher, namely, management, to appreciate what true research is; how it be performed, and the subtle significance of the role of research in our society. Whereas the temptation is to digress here to a treatise on research, I would instead beg your permission to append to the record of this testimony some remarks which have been previously published and which I feel are pertinent.

(The printed document referred to is as follows:)

[Reprinted from Photogrammetric Engineering, March 1954]

WHY RESEARCH—WHAT RESEARCH—HOW RESEARCH

Dr. Duncan E. Macdonald, dean of graduate school and director of physical research laboratories, Boston University Graduate School, Boston, Mass.

I. THE IMPORTANCE OF AN EXAMINATION OF RESEARCH

A growing reservoir of research knowledge is the only assurance of the continued progress of society, for this pool of ideas, techniques, and knowledge is subject to continual filtering in our development progress, and all such progress, in fact, is limited to concepts drawn from the contents of this reservoir.

In the past decade, we have witnessed a vast growth of research effort on the national scene by Government, industry, foundations, universities, and others. With this growth of effort, and the resultant involvement of more and more people in the research field, including the administrative aspects, it seems appropriate to take stock, to examine our potential, and to comment on possible improvements in our utilization of this potential. We are all aware that practical limitations exist as to the number of men and dollars available; but equally important from the national viewpoint is that, in many areas in the physical sciences, we as a Nation are forcing ourselves more and more into the position of being virtually a sole source for our research knowledge.

Our technological leadership is today well established with facilities and methods second to none. Our work in sociopsychological fields has created a national consciousness that results in movements directed toward seeking optimum utilization of the human being in our society. Yet our problem is that all programs of a progressive society are interim—except the mores upon which that society is founded—and the continued progress of that society is based upon and developed from the new values established through research. Accordingly, when research slows down, so does the progress of the society. Therefore, any assumption that, because of our present international leadership in a field, we shall continue to retain that leadership can be a most dangerous assumption, for we can maintain our leadership only by continued advances through the process of research.

The international community benefits from progress achieved in any of its component societies. Clearly, in this world composed of beings and things, we have achieved a vicious closed loop when we must continue to direct our progress to areas where we create more devastating things on the tenet of protecting the beings. In this type of race, we may easily lose sight of the fundamental point, namely, that the beings would not need this type of protection in an international community in which more human understanding—particularly inter-society understanding—existed. This international understanding is our final goal, and it is not available to us through effort on things. Progress on the development of methods and techniques for achieving these better understandings, and on the basic understandings themselves, is the only road to the final goal. In this, technical societies, where the opportunity exists for development of communication and understanding across national boundaries, provide a significant service.

II. THE ROLE OF EDUCATION IN THE RESEARCH FIELD

It is of concern to note the apparent surprise with which we receive news of Russian progress as, incident by incident, new Russian technological advances are revealed, a surprise that the Russian could have gone so far so fast. Clearly, the Russian is geared to a technological society in which tremendous advances have brought him from an illiterate dark age into a modern technological era in only three decades. For example, the recent photographs in Life magazine, taken by United States student visitors to Moscow, picture (a) classrooms of

the public schools—more modern than the average American classroom—and (b) a slum area showing TV antennas on the roofs.

Important in the Russian society is the educational picture. I feel it proper in this broad approach to comment on these potentials inherent in the Russian society, for herein lie, I believe, our gravest problems. Take, for example, the field of photogrammetry, cartography, and geodesy. Dr. K. Pestrecov has made what he terms an "incomplete" survey of those U. S. S. R. publications openly available through New York bookstores, which indicates 28 books published in the period from 1945-52. His bibliography appears at the end of this paper.

It is perhaps significant to compare this with our own activity in the field. The same type of comparison can be made in optics and other fields. And these are not pamphlets; of the 10 books where page numbers were available, the average length was a bit over 375 pages each. They are textbooks, reference works, which not only measure activity by their numbers but educational standards by their caliber. The material appears generally good.

Clearly the potential for rapid technological strides is present in the Russian society, and this is a potential we face. As it appears that the Russian system is geared almost exclusively to a high potential in the development of things, it becomes our responsibility to promote much better human understanding in the international community; but we must also face this growing Russian technological potential with the realization that it is a dynamic situation which we must meet with continued progress in our skills and continued improvements in our own society. In the present crisis, our pressing need for tomorrow is better qualification for more people; and, as a prerequisite, the role of our educational system must be examined and enhanced. This is, today, one of our most grave national responsibilities.

III. THE NATURE OF RESEARCH

Research is like sin—there is no great debate on the issue of whether it is good or bad. On the other hand, research is unlike sin in that all too few recognize it for what it is. Research in the basic sense includes the creation of new knowledge, the reorganization of old knowledge, and the establishment of values. When research is applied, it results in new techniques and/or equipment applicable to a given task or problem.

Research is important in that the development of new equipment or new methods depends upon ideas and techniques created by research. In the logical sequence, there first appears an awareness of a need. This results in looking toward agencies for equipment or techniques to meet the need. These agencies, in turn, call upon the work of research (not exclusively today's but also the generally accepted facts of today which are the result of research of years ago), and from this field of existing knowledge and tools piece together the equipment or techniques that satisfy the requirement.

It is here particularly important that we take full cognizance of the point that the common facts of today are the products of yesterday's research. The calculus—elementary to all analytical mathematical procedures today—was the product of the research of Newton and Leibnitz 2½ centuries ago. It is a basic tool to our technological progress today. Complex and understood by few in their time, it is today regarded as a simple tool commonly understood. Before this, when methods were much less sophisticated, geometry evolved as a product of research. In 2000 B. C., the Babylonians had developed correct expressions for the area of rectangles, triangles, trapezoids, including even the theorem usually credited to Pythagoras. Although then difficult and complex in the eyes of society, restricted, in fact, to the cognizance of the few scholars of the many following centuries, today every high-school student meets these products of research and they are regarded by our society as simple elementary facts. This is the typical sequence, and so today the important products of research—complex and known to but a few—become the simple basic facts upon which tomorrow's society builds.

IV. THE TEAM APPROACH

In the complexity of our present society, research is rarely a one-man job. Conferences between researchers working in the same area, conferences designed to promote the sharing of ideas, skills, and goals are now common and almost requisite. The recognition of the impingement of disciplines, one on the other, demands, insofar as possible, team approaches based on utilization of training and talents from many disciplines. Group discussion is one of the most powerful

tools open to us. From this evolves one of the greatest efficiencies we can apply to this recognizedly inefficient process called research, for one of the greatest inefficiencies occurs in the form of invalid results. If results are recognized as invalid, the invested time and money is lost; if not recognized as invalid, and therefore accepted, the findings can lead directly away from progress, and only through more research and reeducation can they be corrected. Group discussion in the planning phases is one of the best safeguards to apply against invalid experimentation.

V. FACTORS PERTAINING TO RESEARCH ADMINISTRATION

(a) It is well recognized in such fields as, for example, aircraft design that only the expert, by reason of his experience and training, can design an aircraft. In this same sense, research, to succeed, must be treated in the same manner—the worker, not the administrator, much design the research and select the areas for research. If he is to do this, the researcher must be well informed about the plans and problems of his organization. Our National Military Establishment is acutely aware of this requirement and has achieved an excellent organizational mechanism for meeting this need.

Gen. Leslie Simon, in his report on captured German scientific establishments, points up the problem very clearly:

"From the inherent nature of research and the exigencies of practical demands it is patent that the only way to have research ready and on time consists of (a) studying the military plan and development program with a view to identifying the weapons trends; (b) doing research on the fundamentals, the solution of which will enable swift technical research and development of specific items when the nature and character of the needed items become clear * * * It follows that the directors of research must have access to the plans and entree to the councils of the top command. Then the research leaders must direct research upon the fundamentals that will support the anticipated experimentation * * *"

(b) In all this, we must note that research is not a science. Research is an art practiced by a man skilled in that field in which he practices the art. It is essentially a creative technique applied to a problem. We must also note that research never produces the wrong answer. The wrong answers come about only when the wrong interpretation is applied to the results, or the wrong methods are applied to research. One might insert that wrong answers, wrong interpretations, and wrong methods are distinct probabilities when the nonartist practices research.

If we choose to be analytical, we can state that research involves (1) recognition of the problem, (2) detailed specification and outline of that problem, (3) evaluation of previous research in and related to that field by means of recourse to books, journals, and other researchers, (4) the establishment and analysis of methods and procedures, (5) the gathering of data (in the fields of science, this includes making systematic observations), (6) analysis (in experimental work, this includes a statistical treatment of results to assess the precision of the experiment), and (7) the evaluation of the results. In all this, a large share of the experimenter's time goes into the development of the final experimental design.

(c) From the administrator's point of view, there is a fundamental difference between research and other procurement. In procurement, it is possible to predict with some accuracy the time on the drawing board or the time in the shops, or the end item can be visualized before work starts. In research, on the other hand, one is buying ideas and this demands a different management philosophy because from the outset it is unpredictable. The end products also differ. The results of procurement programs—for example, aircraft—can be seen and measured in a straightforward manner. The rate of climb, the range, the air speed, the load capacity are all measures of the aircraft performance, and the need or the success or failure of the program can be judged with relative simplicity from these results. Research does not often produce such concrete evidence, even applied research; the methods of measurement are not so straightforward, and administrative judgments of success or failure of a program are often impossible; and, therefore, the value of the program becomes more difficult to assess—its needs may be totally unrecognized for years. The history of science is filled with illustrations of basic research—knowledge for knowledge's sake—which suddenly, and years later, finds important application. Who, in

1855, saw the need for Levi-Civita's tensor calculus which was used in 1905 as a fundamental tool in Einstein's development of relativity theory? Who foresaw the need for Einstein's work which was used in Bethe's studies in 1936 on solar energy cycles? Yet these building-blocks of the technical field were all fundamental to the products of the Manhattan project and the other AEC programs. Their need is now clearly recognized. How many research administrators or coordinators could or would have sponsored work of the type of Levi-Civita's or Einstein's or Bethe's if it were a yesterday's proposal?

(d) The experienced administrator knows how to judge the efficiency of an organization. However, in the case of research administration, it is impossible to employ the normal standards of efficiency to judge research. In research, one buys ideas, one rents brains, one purchases logic—these are the gains derived from the research dollar. These cannot be evaluated in terms of efficiency as generally recognized. Any individual taken from another walk of life and placed in a position where he must administer research may well experience some fear and trepidation if he has to report that he has so many brains which have produced so many ideas with so large a pool of logic ready to apply to a problem, when, as an alternative, he can arrange for an invention and can show a black box to his superior and say, "This is what I received with my research dollar." In any effort to improve the efficiency through gathering black boxes, to get a quicker and faster return on the research dollar, research collapses and invention and gadgetry creep in. Research cannot be speeded up—it is the type of process that will not operate under duress. The import of strong directives and detailed management of research by administrators naive to the ways of research results, therefore, in a large fraction of the research dollar being diverted away from research and into invention.

Again, one must take full cognizance of the lessons that have already been learned. General Simon, in the report previously mentioned, states:

"The major error was simply this: the scientists tried to do the research to fill the need when demand was made by the military or specifically by the ministry. * * * Somewhere in the scheme of things they needed some persons that were less intelligent and who had more commonsense, some people intermediate to the general run of army officers and scientists."

And, in reference to the Speer ministry:

"Toward the end of the war it had decided to take a hand in research and to make it swift and practical—it appeared that it was headed for colossal failure. Instead of following the sound policy of doing research on fundamentals that will be needed to enable the swift technical research and development of specific items of future needs, it dealt frankly in invention."

One may well be concerned at the pressures existing today toward swift practical research. Governmental criticism of research findings (the National Bureau of Standards, the Harvard University Russian Center) force such pressures. The criticism of research results is always invalid, is always an invitation to gadgeteering—which is often less needed, but in turn is always more accepted.

VI. THE ROLE OF TECHNICAL SOCIETIES

In this pattern of events, the technical or professional societies play an important role. Research can only be judged by its society of peers, i. e., research men in the same field. Thus, judgment is achieved in part through informal conversations and in part through publications and oral presentations at technical societies.

The judgment is not based on needs, but on values established. Negative answers are often as valuable as positive answers; criticisms must be based upon methods and interpretations, not on the results, for the results are wrong only if errors exist in the methodology that leads up to their development.

Thus, the professional societies are in the position to offer valid evaluations, a position they should defend against usurpation by nonresearch administrators who bring at best only 20:20 hindsight to bear on the evaluation problem. The societies, therefore, have a role open to them in protecting research from those pressures which tend to divert research effort from research. This is, I believe, a potentially significant contribution that has been generally overlooked.

VII. THE ROLE OF THE RESEARCH DIRECTOR

It would seem that the research director has three prime functions. First, he must select a team of researchers in which he has faith and confidence; second, he must see to it that the research dollar gets invested in research; and, third,

he must provide the research worker with the freedoms required for his work, including the freedom from pressures that tend to divert his efforts.

Beyond this, the research director must assume the responsibility for getting the results of the research of his organization placed in the proper hands and given the proper interpretation. He must further work toward seeing that the results are properly and effectively utilized.

VIII. A CONFLICT

Because of lack of experience, the research man cannot appreciate the intricacies of operational problems. Thus, there will always be an irresolvable conflict between research and operations. This is based on the fact that the research man wants to hang onto his work longer than is necessary for it to contribute in a useful manner in operations. Conversely, the operational man wants to pull the research equipment or findings into operation before they are ready for utilization. When items are taken from research and placed in operations before the total research benefits are derived, long-range progress is impaired. On the other hand, immediate operational potential is improved. This transitional problem is important to both groups and, in any applied programs, must be planned in advance in the interests of morale of both groups. One solution which can serve to mutual benefit is an intermediate stage in which the groups work together. In this, the researcher can undertake testing and observations, while the operational man can observe, which will start his training and experience.

IX. RESEARCH GROWTH

An accretion process operates upon research. The organization which produces better research tends to attract the better research men. It becomes important, therefore, that any group desirous of, or needing to grow in, the research field direct its program from an overriding philosophy that emphasizes research quality. This, in turn, reflects directly back to the motivations of the individual worker. If one may generalize, these motivations would appear to include stimulation through the challenge of the problem, of the professional contacts, of the work and the reward of publication.

In this, it is necessary to recognize that research is not a discontinuous operation; that it will pay off only in the long run; that results cannot be scheduled and, therefore, that it cannot be efficiently planned except on a basis of long-term continuity.

X. BETTER USE OF PRESENT RESEARCH, BETTER PLANNING FOR FUTURE RESEARCH

Research programs generally present, as their prime product, a report. Often there is a secondary product, an instrument. The reports frequently contain recommended improvements in techniques, philosophies, methods, tests, etc., often specific findings. All too often, these findings or improvements are not acted on. They lie dormant for years. The need for the recent flurry of costly, high-level Government projects to review the conclusions of research done over the past years, and to recommend, after a very limited period of study, the direction of future research, is an illustration of this fact, and indicates the failure of many previously reported findings to take hold. Projects of this survey-type are inefficient because no mind, no matter how great or in what field, can re-orient itself and do its best work in a foreign or even a related field under the duress of a time constraint of the nature imposed by these projects; and, more important, inefficiency is caused by the diversion of effort from other important jobs. Yet the result of these studies has been a series of fine reports, many outstanding ones which have pointed up solid recommendations, made significant contributions, and, more important, created new high-level teams in specific areas.

However, the fortunate results do not cure the disease. The fault lies in the area of communication—a major problem area of our society. In these cases, the responsibility must be shared equally between the researcher and the sponsor.

A sponsor desiring research must prepare himself to receive and utilize the results. The researcher, particularly the research director, must assist in achieving the level of proper cognizance of their utilization potential.

Too often the researcher concludes his work with his final report; but his responsibilities do not end here. In this day and age of too many reports, the communication of the findings must be made as simply and directly as possible—page one. The researcher must be sure that these are properly placed and read. He

must also take issue if there is disagreements as to the findings, for, again, the findings themselves are not subject to criticism—this can only be reserved for the methods of achieving the findings. Thus, the researcher must assist in establishing the proper communication and must defend the interpretation of his work, assuming the responsibility for channeling these results to that point where they can be effectively utilized.

In summary, it appears fitting to quote one of the great research men and one of the great research administrators of our time, Dr. C. E. Kenneth Mees. Dr. Mees, in his moves from research to director of the Eastman-Kodak Research Laboratories and then to vice president of Eastman Kodak Co., has experienced all levels of the problems of research and research administration. He has offered, in a facetious vein, a sound guide to research administration, one which requires a courageous administrator and a great deal of mutual faith but which, if followed in the spirit given, will place the research dollar on a sounder basis. I quote:

"RESEARCH IS A GAMBLE

"It cannot be conducted according to the rules of efficiency engineering. Research must be lavish of ideas, money, and time. The best advice is, don't quit easily, don't trust anyone's judgment but your own, especially don't take any advice from any commercial person or financial expert, and, finally, if you really don't know what to do, match for it. The best person to decide what research work shall be done is the man who is doing the research. The next best is the head of the department. After that you leave the field of best persons and meet increasingly worse groups. The first of these is the Research Director, who is probably wrong more than half the time. Then comes a committee, which is wrong most of the time. Finally, there is the committee of company vice presidents, which is wrong all the time."

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Dr. MACDONALD. The key to our progress as a technological society is the top-level engineer and scientist who is capable of designing the equipment that moves to take over the present role occupied by the skilled worker. It is therefore the practitioner of the arts of technical industry whose function is replaced. And I think that again the history of all of our technological fields shows the sooner that the art of the craft is exposed to the view of the technologist the better this has been for the industry, for the advance of the professions, and for the improved status of the skilled craftsmen.

The shape of the problems of our present society and the shape of the problems of modern warfare are now being molded by technology. The sooner technology has the complete freedom to analyze in detail the task of the skilled craftsman, the better off we all shall be.

As an example we have witnessed in recent years optical glass making. This was an art, the techniques, such things as the composition, the temperature and duration of heating a pot, knowing when to pour and how to pour, were arts passed from father to son. With the recognition of a critical national production situation this industry was opened to the view of top-flight scientists and engineers in collaboration with the skilled worker, the result has been introduction of continuous-flow furnaces which have jumped our productive capacity many hundred percent, have improved our production standards on uniformity and quality. Whereas there are still other areas in which this program must still develop to build up total flexibility, all in all the step of opening up this art to the study of the engineer has resulted in a most significant increase in national potential.

I think the same sort of argument, perhaps not quite so dramatically, can be applied to lens making, watchmaking, emulsion making, and the coating of photosensitive surfaces in the electronic industry. Some of these have occurred gradually over many years.

Automation results in the reduction in the training time of labor, and industry becomes more flexible in terms of output and in terms of its labor force.

Thus considering the problem of manpower for defense what are the significant questions? They include:

First, what is necessary in the way of diversity and strength for a continually existing mobilization base? The programs both in diversity and in strength, under the concept of modern war, must be in existence and analyzed as existing functions.

Perhaps by overstatement it becomes possible to clearly define the relative priorities of the two types of emergencies. I have emphasized that the concept of the mobilization base as a reserve of technological manpower to be applied in the event of total national emergency is obsolete. For the strategic war the mobilization base is an existing entity as it is now participating directly in weapon systems development. This is the war we must win and it shall be fought with the weapons in being at its outbreak.

As opposed to this concept is the concept of reserve technological manpower. This power can be diverted only if sufficient time exists, and this can only exist in a tactical war. Whereas reference can be made to efforts of industrial conversion in the Korean conflict I would hold that by comparison this is relatively unimportant. The Korea type of operation is the type of war where, if worse comes to worse, we can even afford to lose, unpleasant and undesirable as this may sound. Now out of context and out of sense that is a dangerous sentence and so I must state that I do not want it taken out of context. The sense intended is that we will survive as a nation and as a culture even if we should lose a limited or peripheral war, whereas we shall not survive if we lose the total or strategic war.

Second, can the existing teams of top-level scientists and engineers remain intact and be kept thoroughly busy on defense work? If not, then these teams must have enough other interests to keep in full swing. We must encourage, whether this be through Government research and development, or competitive marketing, the ever increasing automation of our precision industries. This is going on today; and it can never be a sudden jump, but I feel confident that more pressures can be exerted to speed up this logical development process.

In the face of the present manpower shortage it becomes important to avoid shifting emphases that encourage proselyting from industry to industry. Whereas the teams at this level must possess flexibility it is not efficient for the men nor for the nation to encourage repeated redirection of their orientation.

Third, and finally, we must ask what can we do in order to produce more top-level scientists and engineers? And this is clearly a problem that faces education, but is of vital interest to Government and industry. The solution must come from a cooperative venture. For each top-flight Ph. D. who is lured from the teaching profession by higher industrial salaries, we lose his potential for producing two top-flight Ph. D. and five top-flight M. A. products per year.

The chief problem of our mobilization base today—and 5 years from now we will still be saying, the chief problem of our mobilization base today—is the lack of enough top-level scientists and engineers to apply their talents to the removal of the arts from the technological industries. The problem, then, of recruitment and of adequate training is broad and all-inclusive and starts back at least in the high schools of the Nation. This, I am convinced, is the most urgent point at which the need for technological skills must be developed for continuing mobilization base.

As an aside, I think it is in order to commend President Eisenhower's step in the appointment of the National Committee for the Development of Scientists and Engineers, headed by Dr. Howard Bevis, president of Ohio State University.

This is the national emergency and we are fighting now for the life of the Nation. Here we do not need to look to the future emergency. In a technological society—in an era of advanced technological warfare the military posture of the Nation, the security of the Nation, and the standard of living of the society become ever more dependent upon the contributions of the top-level scientific and technological people.

Soviet Russia is today outproducing us nearly 2 to 1 in this top-level manpower. In 1955 in the face of this challenge we produced some 125 high-school physics teachers for the nearly 28,000 high schools of the Nation.

Our universities are somewhat better off through the advent of Government and industrial research which enables them to better compete, although still not on even grounds with industrial salaries.

Now there are two bases for citing these points before this committee. First deals with the apparent present trend to place Government research more and more in industry and less and less in universities, a trend which is tending to further bias an already dangerous bias of manpower. Second deals with the present failure of the schools of the Nation to secure adequate scientific demonstration and laboratory equipment. This affects teacher morale—already low because of pay—and student motivation at the most formulative years. Perhaps industry can better cooperate with our schools in this equipment problem but I think that it is important to note that as a Nation we impose the largest import tariff in the world on educational apparatus for educational purposes with school systems that already lack enough dollars to do the proper job.

So to conclude, it is here, in the recruitment of personnel—not in preservation—that we may lose the decisive phase of the war before the combat even starts.

This is the national emergency.

Representative BOLLING. Thank you, Dr. Macdonald.

Our next witness is Mr. Jacob Gichner of this city. Mr. Gichner is an engineer by profession, was concerned with procurement of material for the Navy in World War II, and is associated with a foundry established by his family.

Mr. Gichner, we are pleased that you are here to join the panel, and you may proceed as you wish.

STATEMENT OF JACOB H. GICHNER, MECHANICAL ENGINEER

Mr. GICHNER. Thank you.

Well, I come from Gichner Foundry, but I am at present in business for myself.

Mr. Chairman and members of the subcommittee, my name is Jacob Gichner. I am a mechanical engineer by profession, having received my B. S. degree from Lafayette College in 1924 and my master's degree in mechanical engineering from the same school in 1926. I was engaged in the metals and later in the mining business during

the period preceding World War II. In 1942, I was commissioned by the United States Navy and assigned to the Bureau of Ordnance as assistant to the head of their ammunition program. I left the Navy with the rank of commander in 1946 and worked for private industry as a mechanical engineer until 1949 when, at the request of Admiral Noble, Chief of the Bureau of Ordnance, I put in a temporary 6-month tour as acting head of the Navy's ammunition program, taking the place of a captain who had died and for whom they had no immediate replacement. As a part of this assignment, I was asked to review, evaluate, and prepare a report on the Navy's ammunition program in the years following World War II.

I might say, that it is like making a motion in a lodge or an organization. You make the report and you are elected to do it. In December 1950 I was recalled to active duty in the rank of commander and placed in charge of the proximity fuze program with the Navy, a position I held until July 1952 when I reverted to Reserve status. From then until June 1953, I was employed by the Ronson Corp. in Newark as head of their engineering and research department. In June 1953, I left Ronson to establish my present machine tool and equipment retail business here in Washington.

I think this gives some background as to my experience, and I would like to say that I appreciate the committee's invitation to appear before it and the opportunity it affords me to relate something of the experience of the military in the procurement of the proximity fuze during the Korean conflict. I have read a lot about figures and names and so on, but what I have to state is my own personal experience as the head of this program. I have no personal stake or interest whatsoever in this question. I am not an expert in economy or war or anything, I just happen to be an engineer. I do feel sincerely that the record, at least as to Korea, needs to be made straight and I assure you, gentlemen, that is my sole purpose in appearing before you today.

I might explain at the beginning, that the existing division of responsibility between the services makes it essential that you understand the Navy's position in this, because we purchased all of the rotating fuzes for the Army, the Air Forces, and the Marine Corps. The Army, in turn, had the responsibility of procuring all nonrotating fuzes. This was a division of responsibility set up by the Chief of the Bureau of Ordnance of the Navy and the Chief of the Bureau of Ordnance of the Army in 1943, and it was carried right on through. In the rotating fuze family the proximity fuze was by all odds the most important and was, and still is, one of the prime tactical weapons in our arsenal of ammunition types. During the Korean war, the Navy procured for the Armed Forces, millions of these fuzes, figures given to me by the Bureau, at a cost of over \$1½ billion.

In December 1950 when I was given the responsibility for coordinating and expediting the program, the safety and arming devices for these fuzes were being obtained exclusively from the Naval Ordnance plant in Rochester, N. Y., which was operated by Eastman Kodak under a longstanding management contract with the Navy. At the end of World War II, no one wanted to carry one because they felt there was not much work to do. However, Eastman Kodak was willing and operated a Navy Ordnance plant which was owned by the Navy in Rochester. On November 26, you will recall that the Com-

munist forces launched a powerful counterattack from the Yalu. By the end of December, they had forced the evacuation of 105,000 United Nations troops from Hungnam. Those were bleak days. It was immediately decided, in January 1951, to expand fuze production and broaden our source-base. At that time, there were on the mobilization list of planned producers of safety and arming devices for rotating proximity fuzes 12 companies; 4 jeweled watch manufacturers, and 8 other firms outside the jeweled watch industry, which firms are well known to this committee.

This mobilization list was compiled by the engineers of the Navy, working with inspectors of ordnance and inspectors in different cities, and the list was made up of those companies which had either done the job in World War II, or in our opinion, were capable of doing the job in a hurry.

Based upon the record of past performance, comparative prices, and upon the estimates of our engineers as to their respective abilities to deliver, we selected 5 companies, Hamilton, Elgin, and Bulova, and 2 outside the jeweled-watch industry, and in February awarded letters of intent to each. Each company was given almost identical orders in terms of quantities and was supplied with plans, models, and parts.

From that point on the record, I believe, is revealing. First, as to delivery performance. The first deliveries received under this crash program were received from the Elgin National Watch Co. in October or November of 1951, 8 months after they received the order. The next company to deliver acceptable lots was the Hamilton Watch Co. in February of 1952, and that was followed by Bulova in the following month. When I left the Navy in July 1952, some 17 months after the orders were placed, neither of the other 2 companies had been able to deliver a single lot of acceptable safety and arming devices for proximity fuzes. On at least 2 occasions, I visited the plant of 1 of these latter companies in an effort to assist them in getting into production, and at 1 point I recommended cancelling the company's contract outright, because of its apparent inability to overcome production difficulties. Several months after lots had been submitted by these companies, they found it necessary to go into this engineering all over again in order to produce acceptable material.

At the beginning of the program, it was found in many cases drawings had to be changed and deviations allowed because the plants and drawings received from Rochester had not been brought up to date at the time they were transferred to the other companies. This was due to the fact that they were producing fuzes and making changes as they went along, and the drawings were several months behind. When these changes were authorized, they were issued by means of change orders to all of the companies in the program so as to insure standardization of the product. Once the original lots were accepted from each of the jeweled-watch companies, requests for deviations and waivers from those companies were kept to a minimum. In fact, I recall very, very few that we received.

Next, as to quality. We accepted the fuze parts on performance, and in the procedures then in effect, 12 fuzes from each lot of 3,000 produced were subjected to firing tests at the Navy Proving Ground at Dahlgren, Va. If a single round out of these 12 failed, 36 more rounds from the same lot were tested. If there were any failures in

this group, the lot was rejected. And, incidentally, since each of these rounds alone cost the Government approximately \$50, not to mention the other costs of firing, refiring was an extremely costly process. In addition to the firing tests, lots were put through a "jolt and jumble" test. Based on the reports received by me, the reject rate on fuzes containing safety and arming devices produced by the jeweled-watch companies was lower than that on fuzes containing devices produced by the other two companies. Actually, the first several lots received from the two companies outside the jeweled-watch industry were found unacceptable by these tests. In my judgment, both of these companies were more production-conscious than quality-conscious. This, no doubt, accounts in no small part for their inability to deliver initial lots that were acceptable to the military. At one point, I recall, we tested over a hundred consecutive lots from the jeweled-watch companies without a single fuze failure.

Finally, as to price. The lowest prices paid by the Government for fuzes under this program were charged by the Elgin Watch Co. Elgin was then followed by Bulova, Hamilton, and finally by the other two companies. It is interesting to note that while the aggregate of the costs going into the manufacture of proximity fuzes had almost doubled since World War II, the military was able to obtain these fuses during the Korean war at considerably less than World War II prices. Furthermore, as the program got underway, the companies reduced their prices to the Government.

I would prefer not to draw any conclusions from the foregoing. I think the experience speaks for itself. I do feel, however, that the achievement of the jeweled-watch manufacturers during the Korean war is undoubtedly attributable to their continual commercial concentration on the production of close tolerance, precision-made, high-quality parts. Others can and have produced parts for proximity fuzes and equivalent military instruments. The Korean experience certainly indicates to me, that where mass production of new military items of the proximity fuze type are urgently in need, the jeweled-watch industry is likely to require much less lead time to turn out a superior product and at equivalent or less cost.

Representative BOLLING. Thank you very much, Mr. Gichner.

Before proceeding to our next and final witness, I understand that two of our panel members today are under the pressure of time that comes from having to catch a plane or a train. Therefore, when you gentlemen get to the point where you feel you must leave, you may leave with our thanks for being here.

Our next witness is Dr. William L. Batt. Dr. Batt is a graduate of Purdue University in engineering. He was president at S. K. F. industries for 28 years. His Government service includes heading the ECA mission to Great Britain, and representing this country in the field of defense production at NATO. He was vice chairman of the War Production Board, and a member of the Combined Raw Materials Board in World War II. In 1941 the President sent him to Moscow with the rank of minister. He was a member of the Combined Production and Research Board.

We are pleased that you are with us, sir, and now, please proceed as you wish.

**STATEMENT OF DR. WILLIAM L. BATT, FORMERLY PRESIDENT OF
S. K. F. INDUSTRIES, PHILADELPHIA, PA.**

Dr. BATT. Mr. Chairman and gentlemen of the committee, taking advantage of your latitude with respect to prepared testimony, I thought I would like to talk with you informally about my experience within the Government and during the war, and as a manufacturer over a long period of years.

It ought to be clear, in the first place, that I come here solely on my own responsibility, and that I am on nobody's payroll. I come primarily because of the fact that I am one of the founders and am presently a director and secretary of an organization made up of a group of citizens, organized some 3 years ago, in support of the President's trade policy. This is the Committee for a National Trade Policy. I should point out that my statement does not necessarily reflect the views of the committee. I come here today to offer my personal views only, on a subject with which I have been concerned for a long time. Some 2 years ago we watched with great concern the various devices which were used by opponents of the present administrative program on trade liberalization to weaken that program, and I view this discussion as to the strategic necessity for a protected watch industry, against that background.

I may say, Mr. Chairman, that I came to Washington on June 1, 1940, as a civilian deputy on raw materials to stay 2 months. I ended up by staying 6 years, first as one of Knudsen's deputies, and finally through the war period, ending up with the responsibility to the President as head of the National Rubber Program.

In that period, one had all the experiences one would expect to have in connection with mobilization. If this was the first time I had ever heard claims by an industry of its essentiality, that would be one thing, but I have heard it, Mr. Chairman and gentlemen of the committee, so many times that I have become quite skeptical.

Now, that is not because of the insincerity of the people involved in the industry at all, and nothing that I say here today should in any way, shape, or form, be construed as a reflection on the watch or clock industry. That is the last impression I would want to have appear. However, I am aware of the fact that all of us in industry are prone to lead ourselves to believe that we are doing things that nobody else can do, and that as a result of that, we are specially vital to the national security.

We saw in 1941, 1942, and on, innumerable instances in our war effort of industries who had been doing certain essential things. But we also found that other suppliers could be brought into the picture and that the job was done, and sometimes even better, by these other suppliers. Therefore I look with skepticism on conclusions that a single industry is so essential that it must be protected by such artificial means as the tariff in order to maintain the national security.

I heard only Dr. Macdonald's remarks, and not the whole of those. I would associate myself with a good deal of what he said. My views, however, do not particularly depend on one kind of mobilization or another. I do feel that in the top level of essentiality come scientists and engineers. However, he overlooked one very essential requirement in our security program of skills—at least while I was here he did not

mention it—and that is the toolmaker, the machine-tool designer, the designer of tools and fixtures. I served for many years on the Apprenticeship Committee of the Department of Labor. In my judgment there has not been enough emphasis put on the requirement for more and more toolmakers. This unique class of skills seems to me to be very essential, and I believe that its expansion should be urged.

I want to talk this morning about two aspects of my experience—one being the manufacture of ball bearings—because it is natural that people who are not skilled in the manufacture of precision articles would be enormously impressed with these figures that come out of the watch industry, and I want to tell you about another industry of very high precision.

Part of the reason that watch manufacture is striking to the layman, is because the parts are so small. One goes into a watch repair shop today and sees a watchmaker looking extremely impressive as he takes a watch apart. But the tolerances the watch industry uses are, by the standards in my industry—the industry I used to be associated with—not close tolerances. The yardstick which the people in the ball-bearing industry use today, is a fraction of a ten-thousandth and less; indeed more frequently in the case of ball manufacture one hundred-thousandth, and in some cases five-millionths, a half of one hundred-thousandth.

I have looked at the tolerances, as nearly as I have been able to learn about them from available sources in the watch industry and would, I think, come to the general conclusion that the tolerances in the ball-bearing industry are from a half to a tenth of those in the watch industry.

The manufacturers of ball bearings today are making and selling on a commercial basis, balls to a diameter tolerance of less than one hundred-thousandth of an inch. When I went to SKF the other day to get some material, I picked up something that may be interesting. It is a small tube containing one-millimeter balls. These are one millimeter in diameter, made to the tolerance of about one hundred-thousandth of an inch, as to size, and their surface even more accurate than that.

SKF sells them for ball point pens; makes them by the millions. That is not done with what we would call skilled labor, because the labor that runs those machines consists of men and women from the ranks of people who would otherwise go into departments stores or other unskilled labor occupations.

The skill in the making of that ball lies not in the operator but in the equipment with which it is produced. And that involves a degree of machine design and toolmaking of the kind used in the watch industry. However, my old ball-bearing company is only one of thousands of concerns that have that type of skill.

The steel in this ball costs about 50 cents a pound. I do not know how many balls there are in each of these little tubes, but I know there are 7,000 to the ounce, and I know that the company gets about \$40 an ounce for such balls. You will note the similarity to the price of gold.

During the war we made a great many small bearings. Unfortunately, I could not find around but three of the very small ones we used to make by the millions, during the war. Here is the smallest bearing made regularly at SKF in their production today. And

please observe that the company making that type of bearing also makes a heavy bearing for steel mills that weighs about 1 ton.

I consider, gentlemen, that the important thing to develop and preserve in American industry today, is versatility. I consider, therefore, that anything which tends to freeze American industry tends to defeat the most desirable objective of American security. It is for that reason that I look with grave concern on a proposal that freezes 4,000, or whatever number it may be, men in an industry because of the assumption of essentiality of that industry to national security.

The great single element of success in American business, as I see, is that American industry, has, by and large, been highly competitive, and by and large American industry has, because of that incentive, done things which no other industries in the world have done. I say that with some degree of knowledge because I was for many years the Chairman of the International Committee on Scientific Management, and during 1950, 1951, and 1952 was the representative of the Defense Department on the NATO Defense Production Board. At the direction of my Government, I organized the Production Division of the NATO organization in Paris.

In 1953, I again represented this Government, in helping to improve the productivity of our sister countries in NATO so the load on our shoulders in supplying NATO requirements would thus be reduced. So I know something about European production.

I repeat that the strength of American industry is in its diversity and, therefore, I regard any steps which set aside special segments, put a fence around them, tend to freeze them, as a definite weakening of our national security rather than the strengthening of it. I must repeat that we heard this same argument repeatedly during the period 1941 to 1945. I have heard industry after industry come in and make the case that it was vitally necessary to the national security.

Now, the fact is that the strength of the American defensive system, this extraordinary capacity of America to make war, is just because of the opposite quality that it has, the great ability of American concerns to do almost anything. We had instance after instance of that in World War II.

I remember one case that has been written up somewhat, apropos of your remarks, Mr. Gichner, about the fuze business. The Ordnance Department had made a contract for a fuze called a Junghans fuze, with the Germans. It was very expensive to produce. It ran \$25, \$35, something like that, in the period 1937 to 1938 when they made that contract. It was serious, because obviously if you wanted large quantities, you were not going to get them if that many man-hours were represented. So a contract was made with one of our domestic producers, Bendix, I think it was. They went to work at it from a wholly new point of view. I think when the war was over they were producing that fuze for less than \$4, and that experience was multiplied time after time.

I remember in 1941 when Knudsen proposed the revolutionary step of making aircraft engines in the automobile industry; there were a great many people who thought Knudsen's head ought to be looked into because of that hazardous sort of step. Well, what happened? I can't see how we would have won the war if we had had to develop Pratt and Whitney and Wright to the degree represented

by the production that was made available by Buick, Ford, Studebaker, and the like.

And they produced good aircraft engines, although I assure you the standards of the quality in the production of aircraft engines seemed at least as troublesome to us in the spring of 1942 as problems of accuracy may appear in connection with the essentiality of the watch industry or any similar one, today. The fact that a thing is small doesn't make it necessarily any more difficult to make.

The production of a 50-millimeter Browning machinegun was another example. There was a slide some 24 inches long, hand-lapped. It had always been hand-lapped by the people whom the Ordnance people were using as suppliers.

It was expensive, as a result, but of course, much more important to production was time. Pontiac took a contract to produce that machinegun. Now, they had been doing machine-lapping of pistons and cylinders. Nobody had ever hand-lapped a square part like this before, but the principle was the same. They developed machine-lapping of that slide, and within a year the production of that unit was reduced in cost by—it was about a fourth of what it had been before, but more important, the quantities that came out were so great.

Of course, I can know nothing of the details of the experience that Mr. Gichner had. I have no doubt that it was just as he reported it. But there are always many considerations to take into account in a comparison of this kind and a great many other experiences to the contrary.

One thing that is most important is that when you get into an all-out emergency, the quantities are so great that you cannot depend upon those sources that you would have normally looked at as sources of supply. If, for instance, you look at the quantities of these parts that would be required if we had an old-fashioned war—I have seen some of them in connection with antifriction bearings—they are so extraordinary that your normal resources are completely incapable of meeting them.

So you have to bring new sources in, usually many times the number that were necessary for peacetime requirements and rarely are you able to look to your old source to supply the new management. I would be quite sure that if we had to produce in a new emergency great numbers of parts of the sort we are talking about today, you would not find that you could do that by utilizing the management of the existing watch firms for that purpose, because it just doesn't work.

When you go to another industry, another company, to make a new part, they want to furnish their own management. They want to do it their own way. That is, I'm sure, one of the elements of strength in the picture, that they do do it their own way, and probably a very different way.

So I want to urge on you gentlemen that whenever this national security clause is to be invoked in the interest of the security of our production organization for an emergency, it ought to be looked at with the greatest of care, and I may add with a considerable amount of skepticism, because much of the time it won't be found to have substance.

You can make articles more precise than watches by firms in other industries equally accustomed to precision work and possessed of all the elements of precision production.

It is vital to this consideration to remember that the important elements of such precision manufacture are not operating labor. They are the products of the machine designer and the tool maker—the jigg boring machines, without which you can't make the tools, the measuring facilities, without which, of course, you can't tell what accuracy you have.

I mustn't forget to show you something else which I thought was interesting in this picture of precision, and particularly as we talk about surface finish; let me show you this diagram actually torn off a machine on Tuesday over at S. K. F.: I have to look at it, because it is new to me, in order to be able to describe correctly what it is.

The total height of that graph, gentlemen, represents a measurement of four one-hundred thousandths of an inch, and these zig-zag marks are the deviations from a true surface. Now, each of these lines, which are about an eighth of an inch apart, represent a measurement of two millionths on an inch; and so here you find this deviation from smoothness to be half a millionth, a millionth, two millionths, and those big jumps represent proportionately larger amounts. This is from a piece of measuring equipment regularly used at S. K. F. for measuring surface finish and it is a commercial operation.

The burden of my argument on this point is that there have been such tremendous strides in American industry in the production of articles of precision and that so many people can and are doing it.

Therefore, I turn very briefly, since I take it that this has been well covered, to the effect of the imposition of the element of commercial security on our trade relations with other governments.

The Committee for a National Trade Policy is convinced that one of the great contributions to peace is an enlarged flow of world trade, and it considers in the same way, then, that the interposition of obstacles to the flow of free trade is in principle, an element not contributing to peace and to be avoided as far as possible.

If I were in Government, I wouldn't want to see the watch and clock industry wiped out. I don't believe it will be, incidentally; and if I were in Government, I certainly would do with the watch situation as obviously has been done with the Japanese on the importation of cotton textiles. Somebody has been talking with Japan. They have decided that voluntarily they are going to limit their exports of cotton textiles to the United States.

I don't think it is in the interest of the United States that its clock and watch industry should be wiped out, and I don't think it is in the interest of Switzerland, the principal producer, that they should be a party to that, either. I have seen those things regularly worked out in the past, and I don't see why it shouldn't be worked out now on a friendly basis of understanding, a recognition of what is involved on both sides. If we keep putting more and more governmental obstacles in the way of the improving flow of trade, then I suggest to you that the harm to the United States can be very serious.

Every time we put a restriction upon trade with another country, that other country puts another one or two on us. Our exports are now so large that there must be adequate imports in order to pay for them. You can't expect these countries in Western Europe to carry an adequate defense unless they have a good flow of trade, unless they earn dollars with which to pay for that defense.

And so I would hope that this committee would throw up some flags, very important flags, as to the use of this national security clause.

I like that proposal in the Randall Commission report that national security probably ought not to be invoked as a reason unless the Defense people were ready to stand responsible for such intervention, and if they did, let that be a part of their appropriation as a cost of the defense structure which they think it is necessary to maintain.

I am so apprehensive, gentlemen of this committee, that this clause will be used increasingly as a blanket by concerns which haven't any real reason for applying it, but it will be asked for and those who are favoring more and more protection will use it if they find it is allowed to work. I venture to hope this committee won't give it this encouragement, and so I want to thank you for the tolerance with which you have allowed me to talk this way to you and say how glad I am that you are considering this subject as you are. I read your report in January, word for word. I find myself in the warmest approval of it. I think a great contribution, one of the real contributions of the Employment Act of 1946 was the creation of this committee, and I am glad you are studying this issue. Thank you.

Representative BOLLING. Thank you, sir.

I understand some of you gentlemen have to catch a plane. Thank you very much for being here.

Dr. Talle, do you have any questions?

Representative TALLE. No, thank you, Mr. Chairman, not at this time.

Senator FLANDERS. May I say, Mr. Chairman, that I just presented a written question to Dr. Draper on his way out and the question was:

Would the small ball bearings described by Dr. Batt satisfy the requirements of the smallest gyroscope you are developing?

Dr. Draper said categorically and absolutely, no.

Dr. BATT. Well, I have no doubt they are today using ball bearings smaller than this. I merely gave an example of something my company had made during the last war because it is a small and very accurate ball bearing.

Senator FLANDERS. Now, you don't mind, Bill, if I address myself to you because we have known each other a great many years.

Dr. BATT. We certainly have.

Senator FLANDERS. I was wondering what your comment might be on the statement of experience by Mr. Gichner with regard to the making of the time fuzes and the comparative failure of the two clockmakers and the comparative success of the watchmakers in making those.

Dr. BATT. Well, I didn't know who the other two companies were, Senator. I don't know under what conditions each of them went into it. I certainly will agree that somebody who had never made that part, who went into it cold, is going to be much slower getting underway. He may conceivably make much faster time after he has gotten underway, but the record as it was stated by Mr. Gichner here gave a very large advantage, obviously, to Elgin and Hamilton. But, knowing nothing of the conditions under which each of these 4 or 5 companies was operating, I can't express an opinion.

Senator FLANDERS. I might say, Mr. Chairman, that in the various pieces of control work and timing mechanisms and fuze mechanisms

that we have seen, the offhand impression that I have received is that a clock or pin-lever watch manufacturer ought to be as well prepared for making them as the jeweled-lever watch manufacturer. It is for that reason that I have been particularly interested in the statement of Mr. Gichner this morning, because I think we saw nothing, as I remember, that approached in minuteness the watch work in any defense instrumentation that was shown us. It all seemed to be of a comparatively massive sort.

Dr. BATT. I could give you an experience of my own, Senator, that bears on this. The Norden bombsight people—I think that (indicating) is a bearing used on the Norden bombsight—were impatient with my own people, my own company, and I take it, others in the industry during the war because we didn't get quality up fast enough, and precision up high enough to suit them, and when I talk about their standards of precision, they were ahead of anything I am talking about here today. But it wasn't an easy thing for us, and we had a thousand and one other important things to do.

So they set up a concern in Connecticut to do nothing but produce ball bearings for the Norden bombsight. Now, of course, that little company was slow getting underway. For a long time its product didn't amount to much. But finally, by the end of a year, they were giving us a run for our money. I remember that very well because they were doing nothing else but that, and they were doing that very well. At the start, their start was obviously slow, and that you have to expect. If a skilled man in an industry can't get underway much faster than somebody who hasn't done it before, then that would be unusual.

My only point is that in so many instances, if the new fellow was good, he gets a new approach, he does things in a new way. He doesn't know a lot of things that can't be done, and he may do an amazing job. You remember—I don't know whether you remember, Senator Flanders, but with the enormous expansion of powder during the early part of the war, powder and bag loading—

Senator FLANDERS. I wasn't particularly familiar with it.

Dr. BATT. We had some standby facilities. They couldn't begin to produce what was needed, because the first thing you always find out if you really are in a war, the wants of the military seem to have no limit. They want everything in sight. Really what they want is the result of half, roughly 40 percent to a half, of the total productivity of the country, because they know that is about all you can take out of it. The requirements for powder and bag loading were terrific. Robert Patterson, who was then Secretary of War, faced with that situation, said "obviously the present powder people could never be adequately expanded and what this thing really needs is good management."

So, he said, "I propose that we take 25 of the blue chips from the Wall Street list, companies who have demonstrated that they have fine management and let them take up powder manufacture and bag loading." Included in that list were such corporations as Proctor & Gamble, who had never made anything but soap, but who had top-flight management.

This, I think, fully supports again Dr. Macdonald's remarks; such firms did a good job, slow under way, certainly, but management, good

management, top-flight management, finds a way to get these jobs done.

Mr. GICHNER. Could I answer, Senator, with the names of the companies. I think it would be extremely illuminating to Mr. Batt. Would you like to know the names of the other two companies?

Senator FLANDERS. If you feel—Mr. Chairman, if he feels it is proper to do so, we would like to know.

Mr. GICHNER. Well, one was the United States Time Co., who operated in a camera plant in Little Rock, Ark., and the other was Eclipse-Bendix, who operated in Elmira, N. Y. I am only here for one purpose, to give the facts as I saw them in Korea, not anything else, and the other two companies which were given contracts had good management, but they were slow and their quality at the beginning was not sufficient to pass the standards of performance under which these devices had to perform. And they are the two companies that I mentioned.

I was trying not to mention them, but since in your talk you mentioned Eclipse-Bendix did the time fuze—this was not a time fuze, and there were 147 parts in a little piece like this, including hairspring mechanisms which the watch industry supplied to everybody else. Even those other companies, which went into it, had to get the hairsprings from the watch industry, and I only feel that I couldn't sit here and not present the facts as they are on the record, which could be obtained by checking with the Navy Department, or, I am sure, with the War Department of what the performance was on these fuses.

Senator FLANDERS. Mr. Chairman, I would like to ask one other question of Mr. Batt. I suppose that our frame of reference—I think that is the proper term, isn't it?

Representative BOLLING. That is a good one.

Senator FLANDERS. I hope it is proper as well as good.

I suppose our frame of reference is to consider the question of tariff policy from the standpoint of the defense problem. That is—we are not necessarily considering a general tariff matter and all tariff policy.

I do, however, feel inclined to ask Mr. Batt, from his reference to the textile industry in Japan and the possibility of making arrangements with the Swiss, whether he feels that the preservation of a modicum of an industry should be gone at by negotiation with the competing country, whether we have to depend on any arrangements we can make with Japan or with, in this case, Switzerland.

Dr. BATT. I much prefer to try that route. It won't always work, but I much prefer to try it. I don't like the principle of quotas at all, Senator, but most particularly, when they are to be imposed by the offended country.

Senator FLANDERS. That seems a first quota.

Dr. BATT. It is when arrived at in another way. It is as different in principle from a quota imposed by the importing country, as I see it, as black is different from white.

Senator FLANDERS. I might mention one other thought that has come to me from the gentleman with the Scotch name who has gone—Duncan E. Macdonald. I think it is safe to say that is Scotch. It seems to me that he has brought into this picture rightly or wrongly a completely new concept, and that is in the atomic war—we had a

witness here 2 or 3 days ago who specified different kinds of wars—and that is that in the atomic war, everything depends on where you are then. You have got to pick up right at that stop and nothing after, or no long-range plans at that point are going to have any effect. I think that is a new suggestion which we might well note.

Representative BOLLING. Insofar as this hearing is concerned, I think it was the first expression of that. It is a view that at least some members of the committee have been considering for quite some time in connection with entirely different subjects, including the subject of dispersal.

Dr. BATT. I asked the question, Mr. Chairman, of some experts in this field in Government what the relation of the possibility of the use of atomic energy in another conflict was to the poison gas situation which prevailed before the outbreak of World War II, because then, you remember, all of the countries, the strong countries on both sides at least, were reported to have very large poison gas facilities which might be used at the outbreak of hostilities.

The answer given to me was that the situations were fundamentally unlike in that the conduct of World War II didn't need to have poison gas brought in it automatically in the same way in which the use of atomic warheads on more or less conventional weapons, ammunition for conventional weapons, would today. You can hardly conceive of starting a war today without the use of some of the elements in the atomic field, because that is the only kind of ammunition—I say this as a nonclassified observation—it is probably the only ammunition we have in a great many parts of the world.

Representative BOLLING. Any further questions or comments, Senator?

Dr. Talle?

Representative TALLE. No, thank you, Mr. Chairman.

Representative BOLLING. Dr. Ensley? Dr. Sheldon?

Gentlemen, we thank you very much for being with us. We have one further meeting this afternoon in this same room.

(Whereupon, at 11:40 a. m., the committee adjourned, to reconvene at 2 p. m., the same day.)

AFTERNOON SESSION

Representative BOLLING. The subcommittee will be in order.

This afternoon, we are finishing the public hearings on defense essentiality aspects of foreign economic policy by moving back from the very specific questions relating to the jeweled-lever watch business to the more general formulation of Government policy and its implementation. Our initial press release which has been made a part of the record explained why we are concerned about policy in this field.

We are seeking to assure ourselves that the executive branch of the Government has a grasp at last equal, and I would hope superior, to our own of the many facets of this problem. As a starter, we addressed questionnaires to each of the departments of Government most directly concerned with problems of the mobilization base and of trade controls. Both our questions and the answers received will be made a part of the record.

Presumably working from the same original facts, witnesses on previous days of these hearings obviously have had radically different

ideas as to the kinds of military emergencies which may be thrust upon us, the kinds of military supply problems we will in consequence face, the relative importance of various industries to total national requirements, and the devices best suited to guaranteeing our national industrial needs. Now clearly these are issues which must be resolved. In fact, their resolution in a timely and comprehensive manner will probably determine whether or not our civilization survives or dies. It is obvious that the testimony received so far has not brought us to an easy understanding of these problems.

But these are questions which are a part of the day-to-day business of the Office of Defense Mobilization, the National Security Council, and a number of interdepartmental committees.

We are, of course, not seeking a public disclosure of vital national estimates, or any other security information, nor do we have the facilities to digest the minutiae of all current regulations and M-day plans. It is clearly in the public interest however, for us to gain a better understanding of how the various departments of Government view their responsibilities for industrial planning and the extent to which there are generally agreed-upon procedures which take individual decisions out of the realm of guesswork and expediency.

The watch case decision, although ultimately taken in the White House, must surely involve a use of general principles and tests of reasonableness before recommendations are sent to the Chief Executive. We are hoping for frank expressions and a fresh insight on the approaches used by these agencies in tackling the cases currently before them and the many more which can be expected in the future.

The written replies received are helpful only to a degree, for they leave a great deal unsaid. We have invited Dr. Arthur S. Fleming, the Director of the Office of Defense Mobilization, to join us this afternoon to clarify the views of his organization. Several of the replies from the agencies addressed have come so late that we may have to direct a few questions to those responding for inclusion in the record later. The lateness of some of the replies has in fact increased significantly the difficulties of our work.

In general, though, we do thank the departments for the care they have given to preparing replies, even if in some instances it would seem their individual views have been submerged through the interdepartmental coordination process of review which of necessity has been followed before their replies were forwarded to us.

Dr. Fleming, I know I can speak for the subcommittee in saying that it is not our intention to write the pending watch decision for you or to anticipate several other specific rulings the Office of Defense Mobilization may face during the months ahead. If you have had opportunity to review transcripts of our proceedings, you will recall that we have made this clear I think on a number of occasions.

Even though you may not be in a position to disclose the specific facts which have governed the actions or recommendations of your agency on, for example, watches or oil imports, in the past, you may be able to discuss the rationale of such decisions for us. We feel it would be a real service to the public as well as the Congress if in the course of your discussion you can make more clear how your organization has in the past and will in the future arrive at its determina-

tion of defense essentiality. Following this we should like to put some specific questions to you.

We are very glad to have you with us, and you may proceed as you wish, sir.

STATEMENT OF DR. ARTHUR S. FLEMMING, DIRECTOR, OFFICE OF DEFENSE MOBILIZATION

Dr. FLEMMING. Mr. Chairman, first of all may I say I am very happy to have the opportunity of appearing before this committee. I have had a chance to review the testimony that was given during the first 2 days of the hearing. I have not had an opportunity of going over the transcript of yesterday's hearing. I have read the testimony that has been presented with great interest and I feel that the committee is to be congratulated on developing plans for a hearing of this kind. I am confident that the testimony that has been presented to this committee will be of real help to us in considering various matters that we will be called upon to consider in this area.

Now, as I understand it, the principal concern of the subcommittee, at this particular point, is the effect upon our foreign economic policy of our programs to assure the existence of a domestic productive base adequate to meet our emergency requirements in time of mobilization.

The questionnaire circulated by the subcommittee quite appropriately developed information on how the mobilization base is determined, developed, and maintained, but I think it might be helpful to present a brief statement on the basic importance of a flexible mobilization base together with a general description of the legislative responsibilities that have been placed on my office in connection with the effect of imports on that base.

ESSENTIALITY AT THE MOBILIZATION BASE

Of course, whenever we refer to the mobilization base, we refer to that combination of people, materials, facilities, and equipment that would be available to deal with an emergency situation. This would involve not only the weapons, supplies, and equipment in being at the time but also the capacity to produce essential items.

Now, broadly speaking, as we think in terms of the mobilization base, it is necessary for us to keep in mind two possible situations. There is always the possibility of our becoming involved in hostilities without this involvement being accompanied by an attack on continental United States. Under such circumstances, we must be prepared to step up, as rapidly as possible, our production of military end items.

Then, in the second place, there is always the possibility, of course, of our becoming involved in hostilities which are accompanied by an attack on continental United States. Under such circumstances we must be prepared, during the period immediately following the attack, to provide the resources which would be essential for survival and rehabilitation. And then, during the second phase, we must be prepared to resume our production of military end items.

Now, as I see it, these will not be sharply defined phases. For example, during the first phase we should be in a position where, for whatever period of time that phase may last, we can complete the pro-

duction of at least a few essential military end items—items that might conceivably represent the difference between success and failure in that first phase.

The Air Force not long ago issued a new policy dealing with problems in the field of industrial mobilization in which they took cognizance of the desirability of trying to keep ourselves in a position where we could continue probably for a comparatively short period of time, but at least continue for a period, the production of a few essential military end items. And certainly, whenever the second phase starts, we will still be engaged in survival and rehabilitation activities. Nevertheless, it seems to us that it is clear that under mobilization accompanied by an attack on continental United States, primary emphasis during the first phase must of necessity be placed on survival and rehabilitation. Now, each of these phases would require both facilities, equipment, materials and services in being and the capacity to produce more of them.

In the first situation, namely, a mobilization without attack on the United States, the problems of utilizing the resources that are part of the mobilization base, though complicated and difficult, can be predicted and planned for in substantial degree.

Our experience during the Korean conflict and in World War II has made possible a high degree of readiness for moving into full mobilization without an attack on this country. Our activities in recent years have resulted in the collection of the most comprehensive information on our mobilization requirements and capacity to produce them that we have ever had, and, of course, this is a continuing and ever-changing job. The fact that we are in a better position than ever before to deal with a mobilization situation that is not accompanied by an attack on this country should not blind us, however, to the absolute necessity of maintaining and strengthening this position.

Those who confine their thinking on mobilization problems to the situation that would confront us following an attack on continental United States are overlooking in my judgment a very important aspect of the total problem that confronts us as a nation. If we limited our planning and our program for doing everything possible to strengthen the position of the United States to such a situation and ignored the possibility of general mobilization without an attack on continental United States we would be guilty of a very serious act of omission.

In the second situation, that is, mobilization with an attack on continental United States with nuclear weapons, the problems are incredibly more complicated and less subject to accurate prediction. With the possibility of widespread and disastrous damage to industrial centers, detailed knowledge of the size, location and potential of the components of the mobilization base becomes absolutely essential. The Nation must be in a position to handle rapidly and effectively its immediate problems of survival, rehabilitation and the resumption of essential war production.

There are a number of programs that are in being or in process designed to lessen the seriousness of problems arising from enemy attack. First is the problem of maintaining existing facilities essential to the Defense Department, the Atomic Energy Commission and the Maritime Administration in such condition that we will be able to

make the maximum use of them in the event of hostilities. Our Defense Mobilization Order VII-7 authorizes these agencies to use their procurement authority to insure the continued operation of essential facilities and to arrange with management for the maintenance of both equipment and key personnel in a readiness state for quick use when needed.

Attention must also be given to steps that would help to make sure that a portion of our mobilization base would be available following an attack on this country for use in connection with survival and rehabilitation activities, as well as for the production of those few essential military end items that would be required during the first phase following an attack and to resume production on other items as soon as possible in order to prepare for the second phase. This is why we issued Defense Mobilization Order L-19, a policy which calls upon Federal agencies to encourage and, where appropriate, to require that new facilities important to national security be located and constructed so as to reduce the risk of damage in the event of attack.

The policy lists a number of criteria that should be considered in dispersion decisions, such as the most likely targets of attack, the size of such targets, and the destructive power of weapons that might be used against them; characteristics of the facility, such as underground and built-in protective construction features; and the economic and practical requirements for the operation of the facility.

Another program which is directly related to the maintenance of the mobilization base is one dealing with the reduction of urban vulnerability. The principal emphasis on this program is on the development of metropolitan target area authorities to coordinate all of the Federal, State, and local activities which, if properly utilized, could make a contribution to reducing the vulnerability of urban areas. On January 11, 1956, I issued a defense mobilization order consolidating in the Federal Civil Defense Administration responsibility for the development and coordination of that program and I understand that steps have been taken to get it underway.

Another way in which the Government helps to maintain the mobilization base is through a program for advising industry on industrial defense measures which individual firms can take. Included within the program are measures to assure protection of plants and vital facilities against attack, sabotage, and espionage; measures to assure the continuity of management and technical know-how; and the continuity and rehabilitation of essential production in the event of attack.

As a result of Government encouragement, many companies have voluntarily designated company coordinators to direct their industrial defense planning, started records microfilming programs, developed remote record storage centers, established management succession lists, and set up alternate company headquarters or rendezvous points.

In addition to individual company conferences, the Commerce Department has been encouraging industry groups to provide industry-wide defense guidance. The steel industry, the aluminum industry, and the oil and gas industry have published manuals on disaster and security planning and principles, and the railroad industry is about ready to issue such a publication.

Now, these programs designed to minimize damage to the mobilization base from enemy attack are extremely important, but of equal

importance is the program to determine what the effect of such an attack would be upon our ability to wage war and what steps could and should be taken now to put us in the best possible position to deal with these post-attack situations.

The first step is the development of a method of making rapid computations of assumed bomb damage effects based on information as to size of bomb, the height of burst and the location of ground zero.

When these computations are applied to a cataloging of the location, shipments and employment of the manufacturing plants in target areas; the electric power generating stations; the producers of the most important military end items and of the principal components and subassemblies of these items; the principal military bases and stockpile storage depots; the centers of transportation and communications networks; and the producers of other critical products; we can develop estimates of the damage to our mobilization base from any assumed scale of attack. Much of this cataloging of critical facilities has been completed and work on the remainder is being pressed.

The next step is to develop a record of the complex chains of production for selected critical weapons and essential survival requirements so that we can determine the breaks that might take place in essential production systems. As we perfect these devices for estimating the immediate and indirect effects of attacks of varying patterns and scope, we will have a basis for determining the steps that can and should be taken to put us in a stronger position to deal with postattack problems; in the first phase, primarily the problems of survival and rehabilitation. When these steps are identified, whether they relate to survival and rehabilitation requirements or to military end item requirements, we will continue to use all of the methods that have been provided by Congress to strengthen and to maintain our mobilization base.

FOREIGN TRADE AND THE MOBILIZATION BASE

Now, the discussion up to this point I hope points up the vital necessity for a well-rounded and flexible mobilization base, one that is adaptable to varieties of conditions ranging from mobilization to support localized action in a foreign area to a full-scale war with damaging attacks on the continental United States. That this is an important national objective can hardly be questioned but no one would seriously argue that efforts to achieve any single national objective can be made without due regard for the requirements of other basic national programs.

That mobilization programs should be considered in the light of other executive programs was recognized by the President in the executive order outlining the responsibilities of the Director of the Office of Defense Mobilization. This order created a Defense Mobilization Board to advise the Director consisting of the heads of the Departments of State, Treasury, Defense, Interior, Agriculture, Commerce, and Labor, the Federal Reserve Board, and the Federal Civil Defense Administration.

All mobilization programs having national impact are discussed and reviewed by that Board, assisted, when appropriate, by heads of other affected departments and agencies. As with other national considerations, the effect of mobilization programs on our foreign

economic policies has always been carefully considered in this forum. For example, I believe that the policy which is being followed by our Government of doing everything possible to reduce the barriers to trade between nations is a policy which contributes to the strengthening of our total national security position. I believe that if any exception is made to this policy in the name of national security it should be done only after careful consideration of all the facts surrounding a particular case and only after the relationship to national security has been clearly established.

In this area Congress has as members of the committee appreciate, made special provision for dealing with the effects of imports on the mobilization base. Last session it included in the Trade Agreements Extension Act of 1955 the following language:

In order to further the policy and purpose of this section, whenever the Director of the Office of Defense Mobilization has reason to believe that any article is being imported into the United States in such quantities as to threaten to impair the national security, he shall so advise the President, and if the President agrees that there is reason for such belief, the President shall cause an immediate investigation to be made to determine the facts. If, on the basis of such investigation, and the report to him of the findings and recommendations made in connection therewith, the President finds that the article is being imported into the United States in such quantities as to threaten to impair the national security, he shall take such action as he deems necessary to adjust the imports of such article to a level that will not threaten to impair the national security.

As I see it, the elements of that statute important for the purposes of this discussion are (1) that, as Director of Defense Mobilization, I have a duty to examine the effects of imports on the mobilization base and to advise the President if I have reason to believe there is a threat, and (2) that only the President is authorized to determine that there is a threat and what means should be employed to meet it.

In our examinations of alleged import threats, we intend to utilize to the maximum extent the facilities of other agencies and will seek the advice of those agencies. We will determine, first of all, what the mobilization base should be in order to deal with the problems that would follow in the wake (1) of mobilization without an attack on the United States and (2) of mobilization accompanied by an attack on continental United States. Then, we will determine what is the present condition of our mobilization base in terms of its ability to deal with either one of these two situations. Then, we will address ourselves specifically to the assignment given us by the Congress and determine whether imports threaten to impair the condition of the base and our overall national security position.

I cannot predict, of course, what the President might decide to do if I should advise him that I have reason to believe that a threat to national security exists. The device or devices which might be appropriate would undoubtedly vary from case to case and only the President can determine if action is to be taken and what it should be.

Mr. Chairman, this is simply a general presentation of some of the matters that you have had under consideration. I have not attempted to deal with any of the past history of the Watch case or the oil import situation but, of course, I will be very happy to respond to questions on that.

As you have indicated in your opening statement, certain of these matters are pending before me at the present time and, consequently, I would not consider it to be appropriate to discuss the pending

matters, where all of the evidence is not yet in. But I will be very happy to discuss any aspect of this statement or any other problem you care to raise in this particular area.

Representative BOLLING. Dr. Talle?

Representative TALLE. Mr. Chairman, at the moment, I have no questions. I will say to Dr. Flemming that, as always, your testimony is excellent.

Dr. FLEMMING. Thank you, sir.

Representative BOLLING. Dr. Ensley?

Dr. ENSLEY. Dr. Flemming, should an industry be essential, what would you visualize as being the alternative methods of assuring that we will have it if and when we need it, besides the usual one that we are familiar with, namely, tariffs?

Dr. FLEMMING. Well, as I have indicated in my statement here, as I read the section 7 amendment to the Trade Agreements Act, the responsibility has not been placed upon me to determine what would be the most desirable alternative to use in any given situation. That responsibility has been placed on the President.

As the chairman has indicated, of course, the President in the discharge of that responsibility would look to various sources for advice. What procedures he will follow in order to obtain advice on that particular problem I don't know, because up to the present time no case has been presented to him and, consequently, I just don't know how he will proceed. And, in view of the fact that Congress limited very definitely and specifically the role that I should play in this particular area, I don't feel that it would be appropriate for me to enter into a discussion of the relative merits of various ways of handling a problem that I might present to the President sometime but which, up to the present time, I haven't.

Dr. ENSLEY. But there are a number of alternatives, I assume, that could be used if the situation called for assistance? I am asking you to attempt to evaluate which would be the best.

For example, Dr. Batt, this morning, indicated that if a particular industry was deemed to be essential for defense and it was so ascertained by the appropriate authorities, that in his judgment the most logical way would be to include as an item in the defense budget some type of subsidy which would permit that industry to keep a nucleus of skilled management and manpower to provide the skills necessary in case of an emergency.

Dr. FLEMMING. I appreciate that that definitely might be one approach. The President either in submitting the Randall report to the Congress or in submitting his message in 1955 made a statement—I think it was in connection with the Randall report, wasn't it?

Dr. ENSLEY. Yes.

Dr. FLEMMING. He made a statement to that effect, I mean—that dealt with the question of raw materials, his comment in this case, but the President in his message said the Commission also recommended—that is, the Randall Commission—that domestic sources for raw materials required for military purposes should be assured by direct means and not by tariffs and import quotas. I believe that normally this is sound.

That is a quote from the President's message which is along the lines of Dr. Batt's thinking.

Dr. ENSLEY. With defense expenditures running as high as they are and with the outlook that they will continue to run high for the foreseeable future and with considerable amounts of those expenditures going for the procurement and development of precision equipment, isn't the present expenditure for defense providing or assuring us of at least a nucleus of the skills that would be necessary in most of the precision fields that we would need?

Dr. FLEMMING. Well, certainly the current mobilization program is providing us with the finest mobilization base that this country has ever had in its history. There isn't any doubt about that at all. And, as long as our current mobilization program moves along at approximately the present level, it will result not only in providing us with that base but it also helps us to maintain that base. There isn't any doubt about that.

However, it doesn't necessarily follow that we have got everything in the base that we would need under the kinds of situations that I have described. But I agree with you completely that we are in the strongest position that we have ever been in as a Nation, in terms of our mobilization base. And one of the major contributing factors is the level of our current production, defense production program.

Dr. ENSLEY. The testimony suggests, too, in the last 2 or 3 days that there are relatively few individuals involved in certain key skills as was mentioned, diemaking and scientists and engineers and that sort of thing. Do you believe that adequate steps are being taken to educate and develop that kind of skill, and what might be the next steps in those directions?

Dr. FLEMMING. Well, I am sure that the proper, the correct answer to your questions—the first part of your question—is that we are not as a Nation doing everything that we can do along those particular lines. The latter part of your question, what can we do about it, that draws us back into a discussion of our whole educational program as it relates to the area that you have addressed yourself to. I am sure we can do more in the secondary field than we are doing up to the present time in that area. I am sure that we can afford to give more encouragement to the apprentice programs than we have given to them as a Nation, even up to the present time, although we are doing a lot better along that line than we have ever done before and I am sure that the money that the Federal and the State governments are putting into the field of vocational education should be looked at in the light of this kind of a need to which your question calls our attention.

I am likewise sure that within industry itself we can do a great deal more in the way of adequate in-service training, upgrading, to accomplish the kind of objective that all of us feel should be accomplished.

At the present time, we are in a reasonably comfortable position as far as manpower is concerned. And, particularly, as far as these skills are concerned. I am talking now across the board. I mean all of these skills that would be included in your question. But if we tried to superimpose on our present program an additional program, we would immediately find ourselves in a very tight, difficult position. And immediately we would begin to discover that the limiting factor in terms of our ability to turn out certain types of items was manpower, that is, skilled manpower.

Of course, if you move into a kind of situation that would confront us following an attack on this country, I am sure that, probably for

other reasons but nevertheless, manpower would be our limiting factor in terms of our ability to work out survival measures, in terms of our ability to rehabilitate our economy, in terms of our ability to get back into the second phase.

During World War II, and during Korea to a certain extent, we turned the spotlight upon the type of problem you are talking about in such a way as to make people understand that they were performing a very patriotic duty if they made a contribution to the solution of shortages in this particular area, and as a result, we by and large got a good response.

Because we are not engaged in hostilities, there is a temptation not to turn the spotlight on this problem in as effective a way. I am speaking of us as a nation, now, and yet from many points of view the situation we are in today in the world of which we are a part may be a more critical situation than the situation we could be involved in if we happened to be engaged in localized hostilities some place.

Dr. ENSLEY. With respect to the skilled manpower we need in an emergency, would you differentiate between the numerous skilled machine workers on the assembly line and the relatively few engineers, designers, and diemakers that are needed to develop and build the equipment for precision production? Is there a difference there between the two, and which would be the most critical problem in case of—?

Dr. FLEMMING. Well, obviously the latter group would provide us with a more serious bottleneck, but in terms of the overall picture, I am a little inclined not to get into an either/or frame of mind on it. I think it is both/and, but I am in complete agreement with you that failure to have an adequate number of this latter group could provide us with a rather difficult bottleneck. But on the other hand, if we had enough of that latter group and were short on the first group you were talking about, then all of the work of this latter group might be to no avail because they wouldn't have people to carry it out.

So, I don't like in my own mind to approach it from either/or, but both/and point of view.

Dr. ENSLEY. Isn't the average American skilled worker pretty adaptable in being able to learn pretty quickly the skill or art that is needed to tend a machine on the assembly type of operation as against the person in the second category that requires years of training and experience?

Dr. FLEMMING. Well, as a nation we have done a very good job in training people in the group to which you refer and getting them to move from one type of work over to another type of work. I think we did a particularly good job during World War II along that line. And certainly that was true during the period of the Korean hostilities. But, of course, within that group that you are talking about, there are some skills that you can't handle quite that quickly and quite that effectively and do require a longer period of training. That is why I think it is a little bit difficult to generalize as to that group.

Dr. ENSLEY. Thank you, Mr. Chairman.

Representative BOLLING. Senator Flanders?

Senator FLANDERS. I am sorry to say I have had to be late, and if someone else can catechize the witness, I will rapidly run through Dr. Flemming's statement.

Representative BOLLING. All right, sir: That will be fine.

Dr. Sheldon?

Dr. SHELDON. We are very conscious of the size of the job that is involved in mobilization planning as you pictured it for us, and there are still some questions in my mind. You have presented two primary hypotheses which are being studied in this planning, and each case is a big job in itself: The case of a war which is carried on somewhere away from our own shores and, secondly, the case where there is direct attack upon this country.

Some of the witnesses which we have had in these previous days have suggested other alternatives. I suppose the number can go on almost without limit, and for each one of these various situations there would be somewhat different planning requirements for meeting them. I am sure that the Office of Defense Mobilization and other parts of the executive branch are in no position now to answer for every conceivable situation which might come up.

But, at the same time, because our resources for meeting all eventualities are somewhat limited, there are choices that have to be made to economize our facilities. I can see under different assumptions as to the emergencies faced that the pattern of mobilization requirements would also change, and if this is so, then we must make judgments about the likelihood of some of these emergencies.

How do we know which particular emergency should have highest priority in making our plans for the mobilization base? A certain industry might have to be one size for your first situation and a different size for the second situation. Do we in each instance pick the larger capacity for a given industry, or do we have other choices? How do we go about this priority establishment?

Dr. FLEMMING. Well, as between the two situations that I described—namely, the situation of general mobilization without an attack on this country and the situation of general mobilization accompanied by an attack on the continental United States—I just don't think that as a Nation we can afford to make choices. I don't think we can afford to get ourselves again in a position of saying that we are going to put our emphasis either on this mobilization plan or that mobilization plan. I think we are going to have to put our emphasis on both, and that is why, personally, I feel that persons who focus their attention primarily and exclusively on the situation that would confront us following an attack on the continental United States are really doing us a disservice, because in this kind of a world we certainly could be faced with the necessity of general mobilization without an attack on this country.

As a Nation, we want to be just as strong as we possibly can be in order to deal adequately with that kind of a situation. So, in answer to your specific question, if it looked as though, doing it in quantitative terms; you would express our requirements for a situation without an attack on continental United States as higher than the requirements that would face us in that particular area in the event of an attack on continental United States, then I say we should do everything we possibly can to be in a position where we can meet those higher requirements. It seems to me that it is our obligation.

Now, I appreciate the fact that I am talking now about planning and about everything we should do to make those plans effective. I appreciate the fact that in the whole governmental process some

choices will be made. That is, I might be very emphatic in my feeling that certain things ought to be done in order to give us a strong base in a particular area in order to take care of general mobilization without an attack on continental United States. But my desire to have that done might be running into conflict with the desire that somebody else has to have something else done over in an entirely different area, and Congress might decide between the two; for example, in the Appropriations Committee. Choices of that kind, I suppose, must be made.

But my feeling is that by and large the Government is determined to proceed from a position of strength in its preparation for either mobilization without an attack or mobilization with an attack on this country.

Dr. SHELDON. There are several ways of looking at this matter of whichever is the higher. One would be in purely quantitative terms; we might aim in each industry to attain goals that would take care of the highest conceivable quantitative requirements for any class of war. Another way of looking at that would be in terms of both the probabilities and also the dangers and results which might follow from failure to meet the challenge of certain types of war. It seems to me that we still, perhaps, run into some question of relative priorities.

In other words, in some of the evidence we have received here, industry people have made a very effective case for their importance, and no one could very well say that what they have presented probably isn't true. Even so, identifying them as essential and granting all that they ask in relief might still be costly to other equally important parts of the economy.

Now, how do we, within our limited resources, take care of the highest needs of the country? How do we carry out this part of the balancing operation? I have a little difficulty in seeing how, on an ad hoc basis, we come up with a good conclusion on one industry without possibly having repercussions in other places in the economy which perhaps are a little unexpected.

Could you comment on that?

Dr. FLEMMING. Well, if I get the drift of your question, I think I could be very specific about it. I might put it this way: Let's assume in a particular instance I find, as Director of the Office of Defense Mobilization, that imports threaten to impair national security, and let's assume that the President agrees with me. I mean, that I make a recommendation to him under the law and that he conducts a further investigation and decides that that is the correct conclusion.

Then he has got to decide what methods he is going to use in order to deal with this threat to the national security, and when he looks at one possible method, he may say, "Well, it might cure this particular situation, but on the other hand, it might impair rather seriously another national security policy."

Now, if he decides that that is the case, we will be governed accordingly in his action. If what you are saying is that it is necessary for us to take these specific cases and look at them in terms of our total national security program, I am in complete agreement with you. I mean, we have just got to do it. The fact of the matter is, there is practically not a meeting of the Defense Mobilization Board in which we are not balancing things in just exactly that way.

So, I don't think you can just take one situation and regard it as an isolated situation and say we are going to clean that up or correct it or do something to it no matter what it does to other programs that are an important part of our total national security program. We just can't operate that way and, personally, I never would operate that way.

Representative BOLLING. Are you ready for your question, Senator Flanders?

Senator FLANDERS. Yes, I am ready.

I note, Dr. Flemming, on page 2 you are speaking of two possible types of wars—the possibility of becoming involved in hostilities without this involvement being accompanied by an attack on the continental United States. That is the war of the Korean type, I suppose.

Dr. FLEMMING. Something like that, yes.

Senator FLANDERS. Then there is the possibility of our becoming involved in hostilities which are accompanied by an attack on continental United States. And under those circumstances, you speak of being prepared during the period immediately following the attack to provide the resources and so on essential for survival and rehabilitation, and the second phase, prepared to resume our production of military end items.

I don't see there what seems to be a critical point, which is that we must be prepared for immediate and decisive retaliatory action, bang. That seems to be left out, as I read that.

Dr. FLEMMING. Well, Senator Flanders, I can assure you in my thinking of the total defense problem of the country, I don't leave that out, and I agree with you completely. I was in this particular statement simply addressing myself to the type of problem that had been raised with me by the staff of the committee, but obviously a very important part of our total defense program is to keep ourselves in a position where we can retaliate swiftly and effectively if attacked. That would be an integral part of the first phase and that is why, of course, we have got to place a great deal of emphasis on having weapons in being in order to deal with that kind of a situation.

Senator FLANDERS. One of our witnesses this morning, in considering the atomic attack type of warfare, raised the point that in that case the mobilization base was not of vast importance; more important was what we actually had ready to use at that moment.

Now, that, I suppose, although he didn't clearly state it, was on the theory which, of course, some people hold, that a war of that sort would be determined within a few days. The issue would be determined, that is, within a short time.

Now, I am not going to necessarily ask you what you think about that as I do not know as you would want to say.

Dr. FLEMMING. Well, Senator Flanders, I will be glad to comment in this way on it.

If we are going to be subjected to that type of an attack, there isn't any doubt at all but that the weapons in being become a very important factor in determining what is going to be the outcome of what I like to think of as the first phase.

Senator FLANDERS. Yes.

Dr. FLEMMING. But also we are immediately, as a nation, confronted with the question of whether or not it is going to be possible

for us to pick ourselves up, get back on our feet, and move into a second phase. And that process of picking ourselves up and getting back on our feet and moving into a second phase calls for personnel, materials, facilities, and equipment. In other words, it calls for a mobilization base.

Now, it is a different—

Senator FLANDERS. I assume from what you are saying that you do feel it is necessary to prepare for a type of war in which the initial attack will have very strong effect on the end result, but that it has to be followed up by some aspects of an older type of war.

Dr. FLEMMING. It has to be followed up, first of all, and I have tried in this statement to put the emphasis here on measures for survival and rehabilitation, that is our first. And we will need our personnel and materials and facilities and equipment in order to do that. Then, as you suggest, we have got to be in a position to move into a second phase, which will call for the resumption of the production of military end items. Now, just what the nature of those end items will be and so on, is, of course, hard to predict under the presently rapidly moving conditions.

Senator FLANDERS. There is at least the alternative of our considering that the atomic attacks are primarily a political and not a military weapon. They are terror weapons. You probably know a lot more about these long-range missiles than I do, but I cannot conceive of the ballistics missiles being delivered anywhere near a target at the ranges proposed.

So, I assume that they are political missiles, designed to spread terror and bring about a quick demand for peace negotiations. I don't think they are military missiles in any conceivable sense of the word. The shorter-range missiles are, of course, and the tactical missiles can be delivered on tactical targets but I think the intercontinental and the medium-range missiles are political and not military. But that is just a personal opinion, and the decision may be a political decision rather than a military one. How quick you can pick yourself up is an important element in that.

Dr. FLEMMING. That is right. In other words, Senator Flanders, people say to me, if we are going to be subjected to an attack, we will not need the kind of a mobilization base that we would need if we moved into general mobilization without an attack.

Of course, I am perfectly willing to agree. I mean, the requirements become quite different, and, as I have indicated, the major emphasis is from a requirements point of view shifts for a period of time to survival and rehabilitation.

But, when people suggest that because there is the possibility of an attack on this country that that means that we don't have to think in terms of a mobilization base, I disagree with them completely because I think they are stopping short of a very important point.

Senator FLANDERS. Now, I take it that you begin to address yourself to our specific inquiries, with all this background previous, perhaps on pages 9 and 10 and from there on.

Dr. FLEMMING. That is right.

Senator FLANDERS. And here I read under (c) on page 9—

for example, I believe that the policy which is being followed by our Government of doing everything possible to reduce the barriers to trade between nations is

a policy which contributes to the strengthening of our total national security position.

Now, I would think that you should be prepared to defend that belief, because in the minds of some people, at least, it is not at all obvious.

Dr. FLEMMING. Well, Senator Flanders, I appreciate the fact that there are differences, that reasonable men hold different points of view on that. However, it seems to me that if you take that statement with the next one, which I included in my statement, that it is very consistent with the philosophy expressed by the Congress in passing the Trade Agreements Act, because I feel that the Congress in passing the Trade Agreements Act passed an act which it hoped over a period of time would have the effect of reducing some of the barriers to trade.

At the same time the Congress recognized that there can be exceptions to a general policy, and exceptions that should and could be taken in the name of national security or national defense, and that is why they put in this section VII and put the responsibility for at least initiating action under it on the Director of Defense Mobilization.

But, I do have the feeling that taking the world as a whole and taking the free world as a whole in considering the objectives that we have in mind for the free world to the extent that we can encourage trade between nations, to that extent we do strengthen our security position. But I don't think you can take an extreme position and say that in every particular instance this is the thing that has got to be done. I think you do have to take a case-by-case approach.

Senator FLANDERS. Now, Mr. Flemming, I have known you in some of your previous incarnations, among them as the president of a college, and performing as such very acceptably indeed, and so—I am not sure that this is on our agenda, do you mind?

Representative BOLLING. Not the least bit, Senator.

Senator FLANDERS. All right. So I am going to raise an academic question or two to an old academician. I think all of the assumptions underlying free trade—this isn't free trade we are talking about but it lies in the background of all these questions—need to be critically considered.

First let me say that I am sympathetically oriented in that direction, and yet I have to be sure that I am saying what is there instead of some imaginary picture, or some symbol or something of the sort.

The assumption that freedom of trade tends toward a peaceful world is one which I think has to be considered in view of the fact that the background of World War I took place in a world which was practically free trade and that the basis of the enmities between England and Germany was the way in which Germany was taking away England's world market from her under free competition. So, whenever I see a statement which assumes that free trade and peace have some indissoluble connection, I feel that we have to view that critically and see just what there is there.

Dr. FLEMMING. Senator Flanders, I am in complete agreement with you on that statement. I do not share the point of view of those who feel that if we can solve all of the problems in this area and create, in effect, a free trade condition, which of course I don't suppose we ever can get back to completely as a world, we will assume if we could do that, it would automatically follow that the cause of tension between

nations would disappear and we wouldn't have to be worried about war. I am sure that it just isn't that simple.

I think what I have in mind in making the statement that I believe it contributes to the strengthening of our total national security position was well stated by the President in his message when he asked for the passage of the Trade Agreements Act when he included this paragraph. He said:

For every country in the free world, economic strength is dependent upon high levels of economic activity internally and high levels of international trade. No nation can be economically self-sufficient. Nations must buy from other nations and in order to pay for what they buy they must sell. It is essential for the security of the United States and the rest of the free world that the United States take the leadership in promoting the achievement of those high levels of trade that will bring to all the economic strength upon which the freedom and security of all depends. Those high levels of trade can be promoted by the specific measures with respect to trade barriers recommended in this message, by the greater flow of capital among nations of the free world, by convertibility of currencies, by an expanded interchange of technical counsel, and by an increase in international travel.

Now, it is that approach that I have in mind in making the statement that I did in my statements.

Senator FLANDERS. Now, may I make another observation, and that is that it has always seemed to me that to realize the benefits of freedom of trade it was necessary to have a peaceful world, and a world which is not peaceful, a world in which there are tensions, in which there are threats of interruption to commerce, does face the strengthening, requires the adjustments, requires the taking of measures which are not in order in a peaceful world.

Of course, this question of watches is a case in point. Maybe we should do this with watches, maybe we should do that. But, in part, our decision has to be based on the fact that this is not a peaceful world that we are living in, whether we do this or that.

Dr. FLEMMING. Again, Senator Flanders, I agree. The fact that we find it necessary as a free world to restrict the flow of certain types of materials or to restrict trade between the free world and the nations behind the Iron Curtain is illustrative of that fact. I mean, certainly if we didn't have the situation that we have at the present time, we wouldn't be worried about that type of a problem. But we are concerned about it and rightly so, and so that that means that we have to make an exception to what we might normally do.

That is why I feel that Congress was moving down the same path when it wrote this national security amendment into the Trade Agreements Act. They were just simply saying we recognize there are conditions under which exceptions have to be made to the broad policy that is being reflected in the act as a whole.

Senator FLANDERS. I think that is all I have.

Representative TALLE. Mr. Chairman, Senator Flanders, will you permit me to be academic for a moment?

Senator FLANDERS. This is another academician. There are at least two of them in the room. Well, there are more of them.

You are academicians, aren't you? [To Dr. Ensley and to Dr. Sheldon.] We are outnumbered.

Representative TALLE. We can have a college or university seminar here.

Dr. FLEMMING. I can testify as to Dr. Ensley's status in the academic world.

Representative TALLE. Senator Douglas this morning appropriately quoted from Adam Smith, to whom he referred as the "father of free trade," who said: "defense is more important than opulence." That was a thrust at the Mercantilists who had been in power for about 300 years and did put the emphasis on opulence.

I don't think we need to apologize for exceptions, Senator Flanders, because Adam Smith himself had his exceptions. He did with reference to education. And then—showing how circumstances alter cases—when somebody asked him about the Navigation Acts which Parliament was passing against the Dutch and which strongly affected us as Colonies at the time, his answer was that laws like the Navigation Acts were proper subjects for contemplation. So, we shouldn't apologize for making some exceptions as we go along.

Now, Mr. Chairman, I feel that these hearings have been very much worthwhile. They have for me, at least, and I am impressed again, Dr. Flemming, by the gravity of your responsibility, the very difficult position you are in, because you are obliged to take so many things into account, and it certainly requires remarkable mental integration to be able to bring all of these various factors into focus. It is extremely difficult. I want you to know that I appreciate that and, in connection with the wars that we discussed, those that I know something about from firsthand experience have all at the outset been considered wars that would last not more than a few days. That is a typical thought. That thought was expressed about World Wars I and II. The Korean conflict was thought to be a mere "police action"; but it lasted more than 3 years. So, as an academician, I think of Robert Burns who said, "The best laid schemes of mice and men gang aft a-gley." [Meaning "often go askew, or wrong.]"

We must keep in mind that our best plans may not turn out as we think, and I have been heartened very much by listening to General Gruenther on two different occasions at SHAPE when he pointed out what we could do in the event of attack.

I was almost frozen stiff this morning when I listened to one paper, which was very well worked out, and I have great admiration for the gentleman's scholarship, but then I sort of gained my balance again and I remembered that, after all, the enemy wouldn't do all of that to us while we were sitting idly by—defenseless. We would be out doing something, too. There would be a clash of forces, and that is the sort of thing that makes it exceedingly difficult to carry out the best laid plans. We should remember, Dr. Flemming, that in addition to mobilization there are civilian economy demands upon you, and that you are not free to proceed on a military basis as if nothing else mattered.

I know something about those demands, personally, as you recall, Doctor. But I think the hearings have been eminently worthwhile and I congratulate you on the manner in which you are carrying out your responsibility, Dr. Flemming.

Dr. FLEMMING. Thank you very much.

Mr. Chairman, if I might add something, I would like to comment on 1 or 2 of Congressman Talle's observations.

Representative BOLLING. Certainly.

Dr. FLEMMING. I agree with him that we should not apologize for exceptions to what we regard as a good general rule. I think the only thing we have got to be careful about in the executive branch, where

we are given the authority to make exceptions, is that those exceptions are well documented and well thought through and that we are going to try very hard to do in connection with the discharge of our responsibilities under section 7 of the Trade Agreements Act.

On the question of the duration of a war following an attack on this country, I have kind of refused, even in my own mind, to take hold of any time factor, days or weeks or months. But to me it has been helpful to say, well, I know that there is going to be a first phase. There is going to be an attack. There is going to be swift and effective retaliation. Whether there will be a second wave, a third wave, and so on, I don't know, and I suppose that it would take really a military genius to figure out just exactly how long that period of time would be.

But, for whatever period of time it may be, there will be a first phase which will be characterized by the attack and response on the part of this country. And during that first phase the question of morale of our population and so on is going to be of tremendous importance in terms of our ability to handle that first phase effectively, which means that the question of survival, the measures that we take for our survival and rehabilitation, are going to be of tremendous importance.

It seems to me that in the kind of position I am in, we must plan and try to get ourselves in a position where we would survive and where we could begin the rehabilitation of our economy. And then I believe that we will survive, that we will start to rehabilitate. I believe we will move into a second phase; and that second phase will contain some requirements as far as military end items are concerned.

On the plans, I couldn't agree with you more in what you said about that. Very often the President in effect has said to me that the plans that we work on are readiness plans. We have got readiness plans for each one of these situations. If either of these eventualities should develop, undoubtedly we will find that they will not develop in the way in which we thought they would develop, and consequently the plans that we have developed in many instances will not be very applicable to the situations that actually confront us.

But, as he puts it, the act of planning itself is a must, because it develops habits of thought and action that can be of tremendous help and assistance to us if we find ourselves up against this kind of a situation.

That is why we went through an Operation Alert, 1955, and why we are going through an Operation Alert, 1956.

Now, that Operation Alert will be on the basis of assumptions which undoubtedly would not materialize in just that way, but it means that everyone who participates in that will be developing habits of thought and action which will be, we feel, a tremendous asset in the event we should become involved in hostilities growing out of an attack on this country.

Representative TALLE. I have written as many as 9 versions of a speech, all of which I thought were positively wretched, threw them away, and the tenth one which was used but not written would have been wretched, too, if I hadn't written the other 9.

Dr. FLEMMING. A very good way of putting it. That is the principle I was trying to underline.

Representative BOLLING. Is that all, Dr. Talle?

Representative TALLE. Yes, indeed. Thank you.

Representative BOLLING. First I would like to do what I very seldom do. I very seldom find myself in a position to do this, to register disagreement with Senator Flanders. I am not so optimistic or pessimistic whichever it should be as not to be convinced that at some time in the future an intercontinental ballistics missile with a reasonable accuracy will be developed.

One of the things, as you know, Dr. Flemming, that has always concerned me, I think perhaps more than the average Member of Congress, has been the question of dispersal, and as these hearings have progressed, I have wondered if it was an aspect that had to be taken into account in the question of defense essentiality.

Fairly clearly it doesn't enter into the picture in the one kind of war, the no-attack on this country kind. But in the case of the second eventuality, it would seem to me that it would be an important question, so that you would have a very difficult dilemma. I heartily agree we have to be prepared to fight and win all types of wars, that being the only hope we have of preventing them.

Dr. FLEMMING. That is right.

Representative BOLLING. But I wonder if that is the kind of thing you would be concerned about.

Dr. FLEMMING. Congressman Bolling, we are concerned about it, as you know, and also as I see it, we are face to face with this kind of a problem. Namely, what effect forcing of dispersal or the encouragement of dispersal, whichever we do, in a particular situation may have on an effectively functioning urban economy, and that effectively functioning urban economy is a very important part of our total mobilization base.

I have always had the feeling that we could never set dispersal up as an end in itself, but I do feel that it is a very important deterrent, and can be a much more important deterrent than it has been proved to be up to the present time.

Now, I don't know whether you have had the opportunity of seeing the last dispersal policy that I issued or not, but we issued it in January and I issued it after giving it a great deal of time and thought.

As you know, the previous dispersal standard was that you identify the areas of industrial population concentration, draw a circle around them and then tell everybody to move at least 10 miles beyond the perimeter.

Well, if that was all right in 1950 it obviously doesn't make sense in 1956. Also it became perfectly clear if you tried to apply a nationwide mileage standard in the light of current capabilities of the enemy, well, as Senators Flanders well knows, the circles of New England would be overlapping one another all the time.

Senator FLANDERS. Isn't there a difference between dispersal of old facilities and dispersal of new ones?

Dr. FLEMMING. We feel very definitely, Senator Flanders, in terms of putting the pressure on, if I may put it that way, that it should be placed on the erection of new plants, and we have never announced a policy which put pressure on as far as the dispersal of existing plants is concerned because we have always had the feeling that if we did that, you would be interfering seriously with the effective functioning of our economy.

Now, as a result of trying to think this thing through, we came up with a policy statement which, as I indicated in my opening state-

ment here, lists various criteria that are to be taken into consideration and then we said that we don't feel that we can lay down any nationwide rules on this, that it has to be handled on a case-by-case basis, and so we asked the Area Development Division of the Department of Commerce to get themselves into a position where they could be kind of a clearinghouse for information in this so that in the case of people applying for rapid tax amortization, they could advise them in specific terms as to what they should do. In the case of people not applying for rapid tax amortization, but who were interested in locating at the best possible place, they could give them advice.

I would like to say this, that I have had this feeling all the way along the line. This is the kind of policy that is very difficult for the executive branch to handle just by itself. In other words, people are not going to give it the attention that they should unless they feel that their elected representatives really take it seriously, and feel that something should be done about it.

Senator Bennett, in connection with the Defense Production Act, the pending extension of it, introduced an amendment which doesn't go beyond anything that we have done in the way of the issuance of a policy but which simply, in effect, puts Congress behind that policy. I notice that the Senate committee in reporting the Defense Production Act to the Senate has included that amendment. Personally, I hope that the Senate will include it and I hope that the House when it goes to conference on the bill, will be willing to take an amendment of that kind. I think it would help very much to strengthen that particular deterrent and that is the way I like to look upon it. I think the more things we do along that line, the more apt we are to deter the aggressor in the long run.

Representative BOLLING. So in a sense, then, this would be one of the things that would have to be examined, one of the factors that would have to be examined in connection with the defense essentiality determination, the question of dispersal.

Dr. FLEMMING. Let me put it this way, that here is something that is essential to defense. I feel that if it is essential and if it is located in a target area or if most of the industries are located in a target area, that then the Government should say to that industry, because you are essential to defense you should give more consideration to the question of dispersal than you have given up to the present time.

Representative BOLLING. Thank you.

Senator FLANDERS. May I some time return to this question of the ballistics missile?

Representative BOLLING. At any time you choose, sir.

Senator FLANDERS. I just want to suggest this. First, that a crash program for the ballistics missile, either the intermediate or the long range, almost of necessity means that it cannot be precisely dropped on a target. This would be so unless some lucky feat, which happens from time to time, gives us not only the means of getting the missile off the ground and carried the right range, but also solution of the real problem of aiming it. So, the likelihood is that the crash program ballistics missile will be a political weapon rather than a military one.

Furthermore, until that accuracy is obtained, the political weapon is always available. It is always available to the enemy as well as to us, so that we have to reckon with the possibility of attack by a missile which is a political weapon and not a military one.

Representative BOLLING. I would not disagree with the conclusion.

Senator FLANDERS. On the other hand, I would say that warheads, atomic or hydrogen warheads or what have you, now have the capacity of being military weapons. While they can be used as political weapons, they can be dropped near enough to a target so we can consider those as being military weapons and not essentially political weapons.

Representative BOLLING. I will not pursue this matter further at this time.

The next question I have is this, and in asking it I am not sure that I understood what your statement meant: I got the impression from your statement that you were in process of cataloging precisely the facilities necessary to a mobilization base, that we were still in the process of cataloging the facilities that do exist and are necessary.

Now, that being the case, how is it possible, without a knowledge of all the facilities, to make a determination as to some of the facilities, as to whether or not they are defense essential?

Dr. FLEMMING. Mr. Chairman, I think you are referring to that part of my testimony where I tried to describe briefly the process that we are going through in an effort to assess the damage that would be caused by particular types of attack on this country.

For example, I said that the first step is the development of a method of making rapid computations of assumed bomb damage effects based on information as to size of bomb, height of burst, and location of ground zero. When these computations are applied to a cataloging of a location, shipment, and employment of the manufacturing plants in target areas, the electric power generating stations and so on, then we could develop estimates of the damage to our mobilization base, taking any assumed scale of attacks, and that, of course, is basic and fundamental to our getting any kind of a feel of what our supply requirement situation would be following an attack. That is really the process that we are going through at the present time.

Now, as I indicated, a good deal of that cataloging has been completed and work on the remainder is being pressed. But, of course, the operation of section VII of the Trade Agreements Act will, undoubtedly, be such, is such, that certain specific industries come in, make a claim as to their relationship to national security and then claim that imports are of such a nature as to impair their contribution to national security.

We will have to dig into that, taking advantage of all of the information that is available to us at a particular time. I have long since discovered that in this mobilization field you never reach the place where you have all the information available that you would like to have available. It is always a changing picture, so that you have always got to cut off at some point and say, well, on the basis of everything that is available to me now, what does it look like?

Representative BOLLING. That would lead directly into my next question or series of questions.

I would assume that in the making of any defense essentiality determination, not only would account be taken of the current situation but also that careful account would have to be taken of technological developments, of potential or apparent breakthroughs, technologically, or breakthroughs that had been done perhaps theoretically but not at the production stage and so on.

I would be correct in assuming that that aspect which further complicates the problem would be given very careful consideration?

Dr. FLEMMING. No question about it at all. I can be very specific about that in the light of the testimony that you have had on the watch industry.

Back in 1954 a committee advised me that they had concluded that the preservation of the skills of American jeweled watch industry is essential to the national security. It is well known that I accepted that particular recommendation. It is well known that that particular recommendation has been the basis for working out of policies in various areas within the executive branch of the Government and, of course, will continue to be the basis until such time as it is changed.

Now, it is also well known that the domestic watch industry has applied for assistance or help under section 7 of the Trade Agreements Act. It is likewise well known to the importers that there have been technological developments which, as I understand it, lead them to the conclusion that these skills are not essential to the national security.

Now, obviously we will give careful consideration to the evidence that they have presented, that they will present along that particular line. What the outcome will be, whether it will result in a change in this conclusion or not, I don't know. But, we will have a public hearing before we arrive at any determination on it so that everybody concerned will have an opportunity for presenting their point of view. And this question also relates to some of the questions that Dr. Ensley addressed to me and, of course, will be given very careful consideration. But until all of that evidence is in and until a determination is made, this, of course, represents the position of the executive branch.

Representative BOLLING. Now, that question was really preparatory to this one. With technological advances taking place apparently not on an even curve but on one which moves up sharply on occasion, that raises the question of time. Obviously what was 10 years ago absolutely defense essential may be a great deal more defense essential today, or not defense essential at all. And in the consideration of this whole problem of defense essentiality and the Tariff Act, is there a method, an automatic built-in method, whereby review takes place?

Dr. FLEMMING. Well, of course the only way I can answer that question is to kind of look into the future in view of the fact that up until now no action has been taken under section 7 of the Trade Agreements Act. Let us assume that I made a finding that in a particular instance I felt imports were threatening to impair the national security. Let's assume the President agreed with that particular finding and let's assume that having agreed with it, he took certain action that he thought would improve the situation.

I certainly see nothing in the world to prevent those who would oppose action of that kind at some later point coming back in and saying this picture has changed, and changed rather drastically, and we feel it should be taken into consideration. I not only see no reason why the executive branch shouldn't take note—let me put it this way. I see no reason why the executive branch itself shouldn't take the initiative in recognizing the fact that a change had taken place and reopen a matter of that kind in the light of the changes that have taken place.

Now, as you know section 7 doesn't say anything about that at all. There is no language in there dealing with it; but it seems to me it

would be just a reasonable way for the Government to proceed, and I certainly see nothing in the law which would prohibit the Government from proceeding in that particular manner and that being the case, I would think it could.

Representative BOLLING. The reason for the question was that I was conscious of the fact that the law didn't so provide, and it was a question really, so far as I am concerned, of the executive accepting the responsibility and taking the initiative at the appropriate time.

Dr. FLEMMING. I don't know whether my general counsel would agree with my interpretation of the law at all.

Mr. KENDALL. I entirely agree.

Representative BOLLING. Any further questions?

Dr. Flemming, we thank you very much for being with us. It has been a very interesting meeting for us and I know it has been of assistance to me at least.

Dr. FLEMMING. I appreciate very much the opportunity of being here.

Representative BOLLING. With that, the subcommittee will adjourn to meet at the call of the chair.

(The correspondence referred to in Chairman Bolling's opening remarks follows. Letters similar to that addressed to the Director of the Office of Defense Mobilization were sent to the six agencies which replied. The press release referred to as an enclosure is printed in the early part of the record. The questions sent to all six agencies are reprinted in the reply from the Department of Defense.)

MAY 11, 1956.

Dr. ARTHUR S. FLEMMING,
*Director, Office of Defense Mobilization,
Executive Office Building, Washington, D. C.*

DEAR MR. FLEMING: The Joint Committee on the Economic Report has continued this year its Subcommittee on Foreign Economic Policy, of which I am the chairman. The other members of the subcommittee are Senator Douglas, Senator Fulbright, Senator Flanders, and Representative Talle. Our immediate concern is to continue certain studies which were undertaken last year but not carried through to completion at that time. One of the issues raised in our fall hearings and our report of this January was the interaction between the protection of American industry to meet defense needs, and the requirements of our foreign economic policy.

Because we feel that this is a national issue of major importance and because the problems of the American watch industry are likely to be precedent-determining, we have decided to hold some relatively short public hearings to explore the major questions involved. These will be in the period from June 4 through June 8, 1956, with selected witnesses drawn from among the domestic producers of watches and clocks, leading industrialists, various qualified public figures, and finally, representatives of the executive branch of Government.

We have drawn up a list of questions relating to the problem of defense essentiality, and are submitting this list to all the agencies most clearly involved in influencing policy on these matters, with a reply invited in written form. This list will serve as a guide to our thinking and interests. We should like to have your office answer those questions in the list which fall within its cognizance. If the questions are not phrased in a useful form to reflect the experience and responsibilities of your office, we certainly urge using full discretion in bringing any alternate materials to our attention which will contribute to the central task of the subcommittee. Also, certain questions will be of concern to more than one agency. In these cases, joint answers, if desired by the departments, should be coordinated through the Office of Defense Mobilization.

We are inviting you to appear on the afternoon of June 7 at 2 p. m. to comment on these written statements and to answer such questions as the members of the subcommittee may want to ask. It is conceivable that the nature of the replies received from individual agencies might make it desirable that they also have

representatives present to whom specific questions can be directed. If this is the case, their appearance would be supplementary to your own appearance.

Inevitably such important questions are being asked that problems of security information are involved. We wish to make entirely clear that we are not asking for a public disclosure of that which should be kept within the Government. With your cooperation, we believe that it is going to be possible to arrive at a better public understanding of the issues involved without disclosing vital secrets. If you feel there are certain details which should be called to our attention in executive session rather than in public hearing, or documents we should study without reprinting them in the public record, this should be discussed in adequate time to make satisfactory arrangements.

We will certainly welcome any assistance you can give the subcommittee and our staff. Time is rather short, but if the written replies could be sent by May 25, there would be opportunity for us to study these results prior to the hearings. We have assigned Dr. Charles S. Sheldon II, borrowed from the Library of Congress, as staff economist. If your representative would call him on code 151, extension 2305, it would probably be mutually advantageous.

Sincerely yours,

RICHARD BOLLING, M. C.,
Chairman, Subcommittee on Foreign Economic Policy.

ASSISTANT SECRETARY OF DEFENSE,
Washington, D. C., May 29, 1956.

HON. RICHARD BOLLING,
House of Representatives.

DEAR MR. BOLLING: The Secretary has asked me to furnish comment for the Department of Defense in response to your letter of May 11, 1956, and its accompanying questions bearing on the general question of the considerations involved in determining industry essentiality to defense.

Attached are comments on such of the questions as appeared to relate to the responsibilities of the Department of Defense.

Among the factors involved in determination of essentiality (military and essential civilian requirements, stocks, existing and convertible production capacity, availability of acceptable substitutes, assumed availability of imports from foreign sources, etc.) the procedures for estimating military requirements stand out as vitally important. We are attaching a copy of Department of Defense Directive 4200.1, entitled "Preparation of Materiel Planning Study, DD Form 764", dated April 9, 1954, and 4200.2, "Computation of Mobilization Production and Replacement Requirements for Derivative Areas (Materials and Components)", dated February 25, 1955.

We hope this material is responsive to the needs and interests of your subcommittee.

Sincerely yours,

T. P. PIKE.

DEPARTMENT OF DEFENSE

Comments on questions of the Subcommittee on Foreign Economic Policy, Joint Committee on the Economic Report, regarding defense essentiality and foreign economic policy, May 29, 1956

Question 1: How is the mobilization base determined?

- (a) What assumptions are made as to time, place, and scope of war?
- (b) What are the relative roles of weapons and supplies in being, of munitions facilities in existence, and of conversion of nondefense industries to warwork?
- (c) What contributions and drains implicit in the economies and military establishments of other nations are there which will affect our own?

In discussing the national mobilization base, it may be helpful to point out that while the term in planning parlance refers to virtually all of the national warmaking resources available on M-day, the inquiry of the subcommittee appears to relate mainly to the role of industrial facilities in the mobilization base.

The mobilization base includes the Armed Forces in being, both Active and Reserve, and all the elements affecting their state of readiness, such as manning.

levels, state of training, modernization of equipment, and mobilization reserves. It also includes the supporting resources of the Nation, which are its manpower, industry, agriculture, materials, technology, services, and Government, and the elements affecting their state of readiness, such as planning with industry, civil defense plans, and the adaptability of these resources to a war program.

In general, the size and scope of the industrial part of the mobilization base is determined by a definition of requirements on the one hand, and by planning for the availability of the required resources on the other. As to direct military requirements of the Department of Defense, strategic plans are formulated by the Joint Chiefs of Staff to meet varying conditions of war. (The plans and the conditions planned for are classified.) The strategic plans are translated by the military departments into operational plans and requirements for equipment and supplies phase over the assumed period of war. Assets on hand, current usage, and future deliveries and production capability are taken into account. The Department of Defense estimates of the direct military demand which will be placed upon the industrial economy in time of war are transmitted to the Office of Defense Mobilization, which combines them with estimates of other war-supporting and essential civilian requirements, and matches the total demand against the potential industrial resources of the economy. Planning for tools, equipment, common components, nonmilitary production, power, transportation, and similar supporting resources is the responsibility of the Office of Defense Mobilization and other delegate civilian agencies.

The National Security Council periodically evaluates the actual or probable international situation and makes assumptions as to where a war might begin and what its nature might be; for example, whether a peripheral war or a general war, and the extent to which conventional or nuclear weapons might be employed. The strategic plans formulated by the Joint Chiefs of Staff and the plans of the military departments thus are based on varying assumptions as to time, place and scope of war.

The relative roles of weapons in being, facilities in being, and conversion of industries would vary substantially in varying mobilization situations. In case of nuclear attack on the United States, weapons in being would be of paramount importance, and if there were not an immediate decision of the conflict following such an attack, activation, conversion, or rehabilitation of selected types of facilities would then be of paramount importance. In a mobilization to cope with a peripheral war, or an imminent threat of general nuclear war, still different priorities and urgencies might apply, but it is vital that the Government be in the best possible position to call on the resources of any needed industry or plant in such a situation.

As to the contributions of other nations, one objective of the mutual defense assistance program is to assure the greatest possible military and economic contribution by our allies in a war effort. However, aside from exports of raw materials to the United States, the economies of our allies can be expected to be something less than sufficient to support their own military and civilian requirements, and neutral countries would represent a limited and uncertain source of exports to either the United States or its allies. We must recognize therefore that regardless of which areas of the world might be lost to an enemy, the United States will be counted upon to assist our allies with both military and civilian materiel fabricated by the industries in the United States mobilization base.

Question 2: Does the executive branch have a single set of mobilization requirements and assumptions which are used by all departments in their individual estimations?

(a) If there are differences in assumptions made by different agencies, does the NSC or ODM resolve these differences in a bureau of the budget-type process?

(b) Has the ODM established a consistent list of criteria for determining defense essentiality?

The Office of Defense Mobilization, through its interagency planning mechanisms, has developed and provided all claimant agencies with specific mobilization planning assumptions, which are consistent with the strategic basis for the estimates of military mobilization production requirements that have been submitted to ODM. The Office of Defense Mobilization also has provided the claimant agencies with forecasts of the economic potential of the country under the assumed conditions and the shares of gross national product expected to be available for military and other types of essential wartime civilian production.

The assumptions provided by ODM for across-the-board planning for the entire wartime economy are developed through the mechanism of ODM inter-agency committees, on which Department of Defense and the other delegate agencies are represented, so that estimates and planning are proceeding on a single basis that is understood and accepted by the participating agencies. It is the responsibility of the Office of Defense Mobilization to insure that the mobilization programs of the several claimant agencies are consistent with the established assumptions.

Question 3: By what process does the executive branch determine defense essentiality?

(a) Is there a list of specific logistics requirements tailored for each set of assumptions of possible military emergencies?

(b) Have these requirements been balanced against all other national requirements?

(c) Have these national requirements been assigned priorities which can be matched in a meaningful way against our capacity to produce?

(d) How are specific industries selected to meet total national requirements with the closest approximation of fulfilling requirements at lowest costs of time, manpower, and resources?

(e) Do these determinations lead to clear-cut priorities of defense essentiality for specific levels of output in specific industries?

When specific cases arise which make it necessary to determine whether a plant or industry is essential to national defense, the determination is made by the Office of Defense Mobilization on the basis of factors prescribed by that agency. In the cases which have arisen, the Department of Defense has advised Office of Defense Mobilization of its direct need for specific facilities, on the basis of its requirements for production of specific end items and components and the availability of plants to produce them.

Lists of military end item requirements tailored to all assumptions as to possible military emergency have not been developed. There are logistics requirements for war plans in terms of military organizational units, shipping requirements, communications channels, etc., tailored to varying assumptions as to possible theaters of war and combinations of enemies, neutrals, and allies. The calculation of detailed sets of end-item requirements is a very extensive and complex process, and to develop and keep up to date a full range of estimates of individual item requirements to meet all possible situations would require greatly increased staff throughout the Military Establishment, and is not considered feasible. The Department of Defense program does involve development of specific requirements statements for individual items to meet the most likely contingencies. From such statements of course it is possible to develop reasonably accurate estimates, in broader terms, of requirements to meet other contingencies.

Office of Defense Mobilization coordinates the overall balancing of the military and civilian requirements against national resources.

In Department of Defense planning for the direct military part of national mobilization production requirements, under the production allocation program, specific plants are selected to be the mobilization suppliers of important items of war materiel that require a long production lead time or involve other production problems that can be ameliorated by advance planning.

It is not possible to develop and keep up to date mobilization schedules for all of the millions of essential items that are needed by the Military Establishment. The planning therefore is done first for items that are necessary for survival and retaliation in the event of attack, for maintenance of health, or for combat efficiency. Planning for adequate capacity to produce civilian goods, components that are common to military and civilian goods, utilities, and other essential services is coordinated by the Office of Defense Mobilization.

Individual plants are selected as planned mobilization suppliers of these items on the basis of their past experience and record in similar production, or on the basis of a Defense Department survey of their ability to convert to the production of the items on an efficient basis. For the most important and critical production problem items, an attempt is made to have several possible producers of the item. In the course of this selection the most efficient producer would be considered, but other producers not as efficient (but who must be counted on during a mobilization) are also included in the planning process.

Insofar as Defense Department requirements are concerned, the selection of plants for planned mobilization production does not constitute any indication of the relative essentiality of the selected plants as compared with other plants.

In other words, it has not been possible or necessary to establish specific mobilization production schedules for all essential items.

Question 4: Is there a cataloging of the existing resources of industry and an assessment of their capacity to expand essential production?

(a) Do we know what capital equipment is available and in use for production of essential production?

(b) Do we know what capital equipment is either in standby or storage status which would be usable to meet essential requirements?

(c) Do we have good information on needed skills to fulfill essential manpower requirements, and the availability of personnel to fulfill those requirements?

(d) Do we have adequate studies to answer how quickly we can transfer skilled personnel to more important tasks in an emergency?

(e) Do we have adequate information on how long it takes to train new personnel to perform tasks in essential production, considering changing technology?

(f) What is the role of research and development facilities in the production of materials to fill rapidly changing defense requirements?

(g) Do we have an adequate assessment of the research and development capabilities of individual industries and firms to meet these national needs?

Insofar as the Department of Defense is concerned there are several programs which provide information on production resources within its province. Under the production allocation program described above, surveys are made of the resources and capabilities of the individual plants, and the mobilization production schedules worked out with the plant management take into account the production requirements of the military services and the ability of the plant to expand its output. Some 24,000 United States plants are included in this program. The procurement organizations of the military departments of course also have additional direct information on the production capabilities of many thousands of suppliers of other items and components.

The Department of Defense also collaborates with the Business and Defense Services Administration (Department of Commerce), and with industry, in making studies of critical common components in which the total military and civilian requirement is matched against total potential capacity. Where shortages of capacity are found, steps are proposed to correct deficiencies.

Special studies are made of the production potential and characteristics of many thousands of manufacturing and other types of facilities in connection with the Department of Defense industrial security program. Other special studies are made from time to time by the military departments, such as those of the Air Force and Navy on the expansion potential of aircraft producers. These studies provide a measure of industrial ability to produce specific items under all-out war conditions.

The military departments maintain records of the plants and machine tools which they own and which are in use, in standby, or in storage status. In each department a central inventory record of each machine tool is nearing completion, and calculations are being made of military mobilization requirements for machine tool production.

The information developed by these programs represents a substantial body of data on capital equipment available to produce military items. This, however, represents only a part of the Nation's capacity to expand its war production. Studies and forecasts of other aspects of national industrial resources, such as manpower, raw materials, nonmilitary manufactures, electric power, transportation, and similar services are in the province of the Office of Defense Mobilization and the various delegate agencies, such as Business and Defense Services Administration, the Department of Labor, and others.

Research and development obviously represents one of the most vital elements not only in our future national security, but also in our future national economic life. In military production, the urgent need for application of scientific and technological advances applies not only to military weapons as such, but also to materials, components, and production techniques and processes. The research and development procurement elements of the military departments have direct knowledge of the research and development capabilities of individual suppliers and industries in relation to the various categories of military goods for which such capacity or talent is needed.

Question 5: To what extent do locational factors affect our decisions on the essentiality of certain firms or industries?

(a) Have we made sufficient provision for both dispersion and decentralization of facilities to meet the threats of direct attack upon the United States?

(b) Do our strategic plans require development of overseas production centers to minimize delivery difficulties in time of war to theaters of operations in other parts of the world?

Technically, location would not directly determine in the first instance whether a firm is essential to military production, because that determination relates to capability to produce specific items in required quantities. Location does however affect the extent to which the Defense Department would rely on a plant to produce the item in a mobilization. That is, if a major supplier of a critical item is located in a vulnerable area, other suppliers of the item located in less vulnerable areas might be considered more essential than if all suppliers were in dispersed areas.

We certainly have not made sufficient provision for dispersion and decentralization to assure that no essential production facility would be destroyed or damaged in a nuclear attack. As a practical matter it is not possible to relocate either all essential facilities or all essential production in dispersed areas. It is the policy of the Government that, whenever possible, we will attempt to find sources of current and mobilization supply in dispersed areas. Department of Defense recommendations to the Office of Defense Mobilization in regard to approval of certificates of necessity for new facilities, and Department of Defense advice to its own suppliers and their subcontractors who are building new plants, are designed to influence the construction of essential new facilities in dispersed locations.

Strategic and logistic plans consider the use of foreign industrial resources of our allies to support their own military operations, but they do not consider that allied production can exceed allied needs. For some time the Department of Defense has conducted an offshore procurement program, purchasing from foreign sources certain items for foreign countries in the mutual defense assistance program, in order to build up the allied military production potential. In addition, Congress has appropriated funds for foreign industrial facility contracts which have assisted in increasing the production potential of our allies.

Question 6: What are the merits and the disadvantages of alternate techniques for assuring the adequacy of the mobilization base?

- (a) Import tariffs.
- (b) Quotas on imports.
- (c) Subsidies to domestic producers.
- (d) Stockpiling manufactured goods and parts.
- (e) Standby facilities.
- (f) Pilot runs.
- (g) Expanded research and development activities.
- (h) Preferential procurement.
- (i) Accelerated amortization of capital equipment.

Question 7: In balance, how do measures to protect the mobilization base affect the national well-being in the broader context of national objectives including foreign policy?

- (a) Can defense considerations call for an easing of trade barriers as well as raising new ones?
- (b) Will trade restrictions do more or less harm to the economic strength of the free world than the hoped for broadening of the mobilization base in the United States?
- (c) Do defense essentiality plans take into account sufficiently the possibility that the struggle of the United States and the free world with the Communist states may be primarily economic?
- (d) What reactions can be expected abroad from measures to aid essential industries in this country, and are any of these countermeasures sufficiently serious to United States well-being to be of concern?

The Department of Defense has not recommended that trade restrictions be employed on any general basis as an instrument for broadening or strengthening the United States mobilization base. It is the view of the Department of Defense that the necessity of using trade restrictions should be determined by the particular circumstances of specific, individual problem situations. This Department, in testimony before Congress, and in its participation in the trade agreements program since World War II, has supported the principles of reciprocal trade agreements, and advocates minimum exceptions only as warranted by special circumstances.

As far as the Military Establishment is concerned, stockpiling of certain quantities of finished weapons and components is of course essential to national security and survival. The disadvantages are that such stockpiles may be subject to obsolescence, and maintenance and replacement may be costly. Certain kinds of items or components which are not subject to rapid obsolescence or deterioration can be stockpiled in substantial quantities. If it is not practicable to stockpile full mobilization requirements of an item, the mobilization reserve policy must strike a balance between the urgency of immediate, post-M-day needs, the desirability of maintaining an active mobilization base, and the possibility of expanding production of the item rapidly enough after the emergency occurs.

Standby facilities are an important part of the mobilization base. When the production is such that the know-how has been translated into production equipment, standby facilities are excellent, particularly if they can be adjusted by changes of tooling to adopt technological developments. On the other hand, when production of an item in question requires long periods of time to develop know-how on the part of skilled artisans or craftsmen, standby facilities may or may not be useful. For example, if this required a longer period of time than it would take to establish facilities and train workers through conversion of other facilities, there might be no advantage in providing standby facilities.

Pilot production runs are one means of developing engineering know-how and labor skills, for certain kinds of items. Pilot runs would in some circumstances have the advantage of spreading know-how over a wider area of the base, but if not followed up by active production contracts, they have the disadvantage that the know-how and skills might deteriorate because of technological progress or turnover of personnel.

Continuing research and development on military products and on production methods is indispensable to national security and to national economic strength, regardless of what other specific measures may be used to help maintain industrial facilities as a part of the mobilization base.

In the Department of Defense programs, preference among domestic producers in the award of current procurement contracts is a technique that does not need to be used on any extensive scale to help maintain the mobilization base. In some circumstances, such as the desirability of establishing alternate or dispersed sources, or of attaining standardization of military components, some degree of preference in domestic awards may be necessary. The use of preference in current procurement is determined on a case-by-case basis, in accordance with the policy established by DOD Directive 3005.3, a copy of which is enclosed herewith. In the 14 months from February 1955, through March 1956, out of a total of 404 new contracts awarded under that directive, only 20 involved payment of a price differential to maintain needed facilities in the active base, and the price differentials represented less than one-tenth of 1 percent of the total value of the 404 contracts.

It may be desirable in some instances to give preference to domestic as opposed to foreign suppliers in current procurement, in order to maintain a United States firm as a part of the mobilization base.

Inasmuch as accelerated amortization makes possible the expansion of privately financed industrial resources that are essential to industrial mobilization, this obviously is an excellent method of broadening and strengthening the mobilization base. Implementation of the accelerated amortization program is a responsibility of the Office of Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D. C., May 29, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,
Congress of the United States, Washington, D. C.*

DEAR MR. BOLLING: This will reply to your letter of May 11, 1956, relative to the hearing on the relationship between programs to protect the mobilization base and the requirements of our foreign economic policy.

Because of the many complex facets to the general problem under consideration by the subcommittee, particularly those involved in the related problems of

the mobilization base, defense requirements and facility essentiality, we have refrained from attempting to answer the questions submitted with your letter in the order in which they were presented. We believe that to have done so would have resulted in answers to small parts of a larger problem which would lose their effectiveness if not presented in the proper framework. Accordingly, we have prepared a general discussion of pertinent aspects of the mobilization base program which we believe will provide the subcommittee general answers to most, if not all, of the specific items included in the first five questions which you have raised. In the event that you may wish to review more detailed information on our activities in this regard there is attached the full report of the Joint Committee on Defense Production for 1955, which includes ODM's annual report (p. 99) as well as reports of other agencies engaged in mobilization activities.

With respect to question 6, we believe that the merits and disadvantages of alternate techniques for assuring the adequacy of the mobilization base can be weighed only on a case-by-case basis. The tax amortization device has been our most general tool in accomplishing the expansion of domestic productive capacity and supply although other devices have been used either separately or in combination. As examples, a standby plant might well be the appropriate device for insuring capacity for the production of a military end item for which there is no current demand, while on the other hand, preferential procurement has been used to assist in rehabilitating the mobilization base in an area severely damaged by floods. In the foreign trade area, we have recommended suspension of duties on certain strategic and critical materials which are in short supply in the United States, and have stockpiled quantities of such material for emergency periods when foreign sources of supply may not be available.

With respect to protecting the adequacy of the base in cases where it might be threatened by imports as provided by section 7 of the Trade Agreements Extension Act of 1955, we feel that it is important to note that, as far as the executive branch is concerned, the President is the only person authorized to determine if in a particular situation it would be necessary to act. If, in a particular case, the President should decide that steps should be taken to prevent an impairment of our security position, the device selected by him would undoubtedly vary from case to case. We feel that it would be inappropriate for us to speculate on the circumstances under which the President might decide to act and the course of action that he might follow in any given case.

Question 7 also raises questions to which it is not possible to give a generalized answer. As indicated by the President in his state of the Union message, a broad and diversified mobilization base of sufficient flexibility to meet changing defense requirements must be maintained in order that we will have the facilities, materials, skills, and knowledge to expand rapidly the production of things we would need for our defense whenever they are required. In that same message he referred to other important national policies and objectives in the areas of international affairs and the domestic economy. Each national program must, of course, be conducted with due regard to others—each is necessary to our national well-being and it is not possible or appropriate to weigh one against another except in individual cases. The effect of proposed mobilization base policies and programs upon the various aspects of our domestic economy and upon our foreign trade and international relations is reviewed through inter-agency committees both at the staff and the Cabinet levels. The Defense Mobilization Board which advises the Director of the Office of Defense Mobilization in this regard consists of the heads of the Departments of State, Treasury, Defense, Agriculture, Interior, Commerce, and Labor, the Federal Reserve Board and the Federal Civil Defense Administration. The relation between mobilization programs and other national objectives is carefully considered.

I trust that this information will meet the preliminary needs of your subcommittee and I will be glad to attempt to answer any specific questions which you may wish to ask at the hearing next week.

Sincerely yours,

ARTHUR S. FLEMMING, *Director.*

DEVELOPMENT AND TESTING OF READINESS PLANS

Mobilization plans under development by the Office of Defense Mobilization and the delegate agencies are designed to meet variable mobilization requirements ranging from a slightly stepped-up level of mobilization to attack without warning against the continental United States. The ODM has developed and

provided all claimant agencies with specific mobilization planning assumptions which are consistent with the strategic basis for the estimates of military mobilization production requirements submitted by the Defense Department. We have also supplied the claimant agencies with forecasts of the economic potential of the country under the assumed conditions and shares of the gross national product which are likely to be available for essential production in time of war. The basic planning assumptions are developed through the use of interagency committees on which all of the delegate agencies are represented. In this way the assumptions reflect the wartime responsibilities of the various agencies and provide a single basis upon which mobilization planning can proceed. The agency programs are reviewed by the ODM for consistency with these assumptions.

We have developed readiness plans designed to meet two general mobilization conditions—hostilities without an attack on the continental United States and war involving an enemy attack on this country. These plans are based on the best estimates of military and essential civilian requirements for materials, manpower, transportation, etc., under the particular assumptions developed for that plan.

To test the adequacy of peacetime planning for mobilization, and to provide a training program for the Executive Reserve, the ODM has been developing mobilization-readiness exercises or war games.

In June 1954 an initial test was conducted in connection with the Federal Civil Defense Administration's nationwide Operation Alert 1954. The second test was conducted in November 1954. It was designed as a command-post exercise when some 25 to 30 key mobilization agencies tested relocation and communications facilities for 6 hours.

During Operation Alert 1955, the third in this series of exercises was held. Spanning a 3-day period, June 15-17, Operation Alert 1955 was conducted with considerable success. Several thousand key officials and employees relocated during the test.

In April 1956 we conducted a test of a readiness plan involving mobilization without an attack on this country. This test was conducted in cooperation with all the departments and agencies of the Government primarily concerned and provided a firm basis whereby the agencies can continue to review their programs in the light of common assumptions.

Operation Alert 1956, scheduled to begin July 20, 1956, will be a three-way exercise in which civil defense, Government, and military plans and operations will be subjected to an integrated test of the readiness plans for a situation involving an enemy attack on the continental United States.

The development and testing of mobilization plans is, of course, a continuing task. The assumptions must be altered in accordance with changing conditions, requirements, and estimates of net capabilities. In the development and testing of these plans, closest liaison is maintained between those agencies concerned with military requirements and those concerned with essential civilian requirements.

SUPPLY-REQUIREMENTS ANALYSES

Under ODM leadership, defense agencies are engaged in a continuing program to measure the Nation's maximum potential production under full mobilization conditions and to analyze the specific supply-requirements relationships that would exist. The overall objective is to develop mobilization plans which lie within our resources and provide the maximum power that these resources can support.

This program is carried on under the authority of Executive Order 10480, section 101 (a).

First-round analysis

A first-round overall supply-requirements analysis was begun in 1953 based upon the assumption of a 3-year war not involving attack on the United States soil.

In brief, the technique which was developed for analyzing supplies and requirements for an assumed mobilization period is as follows: A future mobilization period is assumed and a projection is made of the Nation's overall production potential (gross national product) during that period. This is the maximum supply of goods and services that would be available under full mobilization conditions.

At the same time, the Department of Defense develops estimates of military requirements to meet strategic plans under the conditions assumed, and ODM's delegate agencies develop estimates of defense-supporting requirements and civilian requirements set at the minimum levels which enable the civilian economy to provide adequate support for planned wartime programs. These requirements are compared with the maximum supplies available.

Analysis of the supply-requirements situation indicates which resources are in approximate balance with requirements; which are in surplus; and which are short. Some deficiencies can be met by redistributing the resources. After all possible redistribution, remaining deficiencies are measured and decisions can be made whether to close the gaps by expanding productive facilities, by stockpiling or by developing substitutes, or whether the military or civilian programs must be further scaled down.

Growing out of the first-round analysis, studies were completed during the past year on mobilization requirements and supply capabilities for detailed shapes and forms of steel, copper, and aluminum.

Second-round analysis

The Office of Defense Mobilization, in cooperation with the delegate agencies, is now undertaking a second-round supply-requirements analysis which will be based on Defense Department strategic plans and will provide supply-requirements information on two different bases:

- (a) Full mobilization supply and requirements analysis assuming no attack on the continental United States.
- (b) Supply-requirements analysis assuming attack.

The Department of Defense has begun to determine military requirements under the new strategic plan. The services have been requested to compute their requirements under the plan for a selected list of end items—approximately 400 to 500—which will represent about 70 percent of the dollar value of procurement for the assumed mobilization period. This computation will set up requirements and production capabilities without bomb-damage assumptions.

Concurrently, ODM, with its delegate agencies, will estimate civilian and war-supporting requirements without attack damage assumptions, based on a gross national product projection for the specified period.

These two sets of requirements data will then be compared with the supply estimates and the resulting analysis will indicate the feasibility of the program, in terms of resources, under conventional mobilization assumptions.

The second analysis will be made on the assumption that a future war would be initiated by massive enemy attack upon the United States, using nuclear and thermonuclear weapons. Introduction of attack damage assumptions into the procedures described above, presents many problems and new procedures will have to be devised to solve them. Bomb-damage assumptions must be applied to estimate of both supplies and requirements. For example, it is possible that some raw materials now stockpiled might not be needed because of the shortage of manufacturing facilities to use them, while finished goods needed for maintenance of a bedrock civilian economy would be in very short supply.

Accordingly, the delegate agencies, under ODM guidance, will prepare estimates for (1) minimum civilian requirements under attack conditions, (2) war-supporting production requirements based on surviving capacity, and (3) reconstruction and rehabilitation requirements for the damaged economy.

Since the strategic plan being analyzed does not assume a bomb-attack situation, postattack military requirements will not be directly available from the requirements analysis of the plan. Accordingly, ODM, with the assistance of the staff of the Assistant Secretary of Defense (Supply and Logistics), will apply the attack damage assumptions to the military end-item schedules. From this work estimates of surviving military production, by end-item schedules, will be developed and these will be referred back to the Joint Chiefs of Staff for their further consideration.

The sum of the civilian requirements, plus the estimated surviving military production, will then be tested against surviving resources.

The general (or gross national product) approach provides information on overall and major-purpose resource use. In many instances it is necessary, however, to direct attention to specific kinds of resource deficiencies which must be subjected to intensive analysis. Examples of these kinds of situations are found in the case of components, machine tools, and specialized types of production equipment.

The important additions to the mobilization base in the past few years—in basic raw materials capacities; in critical component capacities; in long-lead-time equipment in place; in plant construction in the industrial, power, fuel areas—have tremendously increased the productive capacity of the United States to

wage war. But this expansion has taken place unevenly and there are deficiencies in critical areas which must be identified and corrected.

The methods used in identifying and measuring critical deficiencies vary, depending on the resources under review. For a large number of materials the aggregate demand-supply situation under full mobilization conditions can be determined from translation of projected production levels into demand, on the one hand, and from estimates of potential supply, on the other hand. The processes and data for translating production schedules into metal equivalents have been developed to the point where reasonably reliable estimates of total demand-supply conditions can be made, once all end-item schedules are determined.

The adequacy of end-product fabrication and assembly facilities can also be appraised and deficiencies identified once production schedules are established. Because of conversion potentialities and multi-purpose facilities, special studies are required to appraise the adequacy of productive capacities to achieve selected end-item schedules.

The situation is similar with respect to facilities for producing subassemblies and specialized components, equipment and machine tools. The adequacy of facilities to produce these items can be analyzed as soon as end-product programs are established.

EXPANSION GOALS

An expansion goal measures the deficit between anticipated requirements and the capacity of industry to meet those requirements. Estimates of capacity involve consideration of more intensive utilization of existing plants and facilities, shifts in foreign trade, and the feasibility of converting existing facilities to meet requirements. Such information is analyzed and appraised and deficiencies are identified and measured with special reference to current production bottlenecks or those which would emerge in event of full mobilization. If these deficiencies cannot be overcome by private industry without Government incentives, the total amount of expansion needed is expressed in an expansion goal.

If it is determined that proposed expansion is not essential to the achievement of mobilization objectives, because the requirement for the product is not closely related to the mobilization needs, or because existing capacity or expected normal expansion will be sufficient to meet necessary needs, no goal is established. The decision not to establish a goal for an industry constitutes a declaration that such expansion is not eligible for Government incentives.

Goals are periodically reviewed and revised as new information or changed circumstances indicate. Delegate agencies, on their own initiative, or at the request of the expansion-goals staff, submit data on capacity requirements in support of recommended goal revisions.

Where it is not feasible to develop an expansion goal, but where a particular project recommended by the delegate agency is urgently needed, defense relationship and shortage determinations may be made by the expansion-goals staff, and the case processed on a "one-of-a-kind" basis.

The use of various incentives to encourage necessary defense expansion have been authorized by the Congress. The principal ones are rapid amortization of the cost of new or expanded facilities, Government guaranties of loans made by private financing institutions, direct defense loans when other means of financing are not available, Government procurement contracts to guarantee a market for the production of the new facility, and the purchase and installation of tools and equipment in private plants. During the past 5 years these incentives have assisted in the expansion of facilities needed for the mobilization base to the point where only 32 goals of a total 227 still remain open. Some of these will probably remain unfilled and other devices will have to be adopted to provide for mobilization requirements. The possibilities of alternate programs for such a purpose are being developed, for example, in our studies of critical components. It may appear that Government installation of standby production lines in private facilities, or the creation of stocks of components or subassemblies may be required to insure the availability of adequate productive capacity at the time when it would be needed. Other steps may be necessary to fill other gaps in the mobilization base.

In connection with the discussion of expansion goals, our policy with respect to geographic dispersion of facilities should be mentioned. The vulnerability of the large industrial metropolitan areas to nuclear attack is, of course, a continuing threat to the mobilization base which we have attempted to minimize by applying the dispersion factor as a criteria for the extension of Government

incentives to industrial expansion. It is obviously an economic impossibility to provide for the dispersion of all existing industrial facilities but it is our policy to encourage the dispersion of new facilities and to require it in appropriate cases where Government assistance is rendered in one form or another. The latest publication of that policy in January of this year is attached for your information.

MAINTENANCE OF THE BASE

It is essential that the facilities important to defense be so maintained that they will be available for immediate use in mobilization emergency. By maintenance is meant insuring the continued availability of plant, equipment, and manpower skills in a condition and place which will permit the accomplishment of full scale wartime production with reasonable promptness. This objective would not be realized, for example, if a plant were substantially altered so as to preclude the output of planned wartime production. There would also be a failure in maintenance if essential machine tools or production equipment were sold or damaged, or were stored in a manner which did not permit their prompt identification and reinstallation. Finally, there would be a failure of maintenance if a cadre of skilled workers were not available because of migration, loss of skill through unemployment or failure to maintain training pipelines.

For facilities such as steel mills, powerplants, and plants making products which have an adequate peacetime market, the impetus for adequate maintenance is provided by the demands of the general United States economy. However, for facilities which make products used only in wartime or required during wartime in quantities far in excess of peacetime production there are real maintenance problems.

The policy adopted to meet these problems is expressed in Defense Mobilization Order VII-7, issued August 25, 1954. Its objective is that the facilities, machine tools, production equipment, and skilled workers required to meet minimum wartime mobilization needs for the Department of Defense, Atomic Energy Commission, and the Maritime Administration be maintained in the manner which will permit their prompt use or conversion in time of emergency.

To implement this objective, the order directs the Department of Defense, Atomic Energy Commission, and Maritime Administration to select facilities essential for the mobilization base and to maintain them to the fullest extent possible by placing current procurement, whenever possible, with such facilities. Upon the expiration of current procurement contracts, the agencies are directed to take the following steps to maintain their mobilization base:

(a) Within the limitations of available funds, place Government-owned facilities and tools in standby status and provide for their adequate maintenance.

(b) Arrange with management of privately owned facilities, whenever possible, to hold Government-owned tools and production equipment in efficient operating condition in or near the plants which would use them, taking into account the desirability of safe location.

(c) Arrange with management, wherever possible, to keep a group of key managers, engineers, and skilled workers familiar with the items planned for mobilization production.

(d) Determine the gaps which exist in Government-owned packages of tools and production equipment needed to produce mobilization requirements in privately owned plants. Within the limit of funds availability, plan the procurement of such tools and equipment with priority being given to long-lead-time tools and equipment or those not used in general manufacturing.

(e) Dispose of Government-owned tools and equipment which have become obsolete, or which would not be used in event of mobilization.

The Department of Defense has selected for maintenance 734 plants producing or scheduled to produce 451 selected military items. These items are, in general, the most important on the Department's preferential planning list. Additional facilities will be added to the mobilization base as additional plants are scheduled to produce the more urgent and complex items which have been selected from the preferential planning list. The highly selective character of this Department of Defense mobilization base is emphasized by a comparison of the number of plants selected (734) with the total number of plants which are planned mobilization producers of the Department (24,000).

Since procurement and contracts for the AEC programs are placed almost entirely by the AEC's offices and operating contractors in the field, no central

list of privately owned facilities essential to the AEC mobilization base has been assembled to date. Such sources are known, to the procurement officers and normally are invited to participate in appropriate current procurement. The AEC is now developing a list of items which meet one or more of the criteria for the selection of the mobilization base as set forth in section 2 of DMC VII-7. Current suppliers of such items initially will constitute the mobilization base for the AEC maintenance program. This base will be broadened by the development of additional or alternate sources.

The Maritime Administration has a complete list of the shipbuilding and repair yards, together with required expansions, that constitute the mobilization base for that agency. It also has a list of the more important producers of the more complex component and equipment items.

RESOURCES INFORMATION

The continuing survey of existing industrial resources is an integral part of the supply-requirements studies and the expansion goal reviews referred to earlier in this paper. The Department of Defense, of course, has accurate information on its current and prospective contractors and the civilian agencies obtain current information on facilities and capacity in the defense-supporting essential civilian areas of the economy. Government information on existing industrial capacity and its potential for full mobilization purposes is under continuing study.

In order to determine importance of key industrial facilities to defense mobilization, defense production and the essential civilian economy, a program for making security ratings has been in effect for several years. This program is carried on under the authority of Executive Orders 10421 and 10438.

These ratings are used as a basis for establishing priorities of effort in many defense mobilization programs, and also for civil-defense purposes.

The Department of Commerce, with the assistance of other agencies, is responsible for analyzing and recommending ratings for facilities producing specified products and services. Product or service ratings are based on the relationship between requirements and the capacity of present producers and a judgment as to the relative importance of the product or service. Facilities are then rated with respect both to the relative importance of the product and the relative importance of the facility as a producer of the product or service. Facilities may thus receive multiple ratings depending on how many products or services selected for rating they produce.

Actual ratings are made by the Industry Evaluation Board, composed of representatives of the following agencies: Department of Commerce, Department of Defense, Department of the Interior, Atomic Energy Commission, Federal Civil Defense Administration, and Office of Defense Mobilization. The Department of Commerce chairs the board and coordinates the assembly and analysis of information in all product and service areas, except for a few non-manufacturing services which have been coordinated by other agencies. The board reviews the information and analysis supplied and the facility rating recommended by the agency coordinating the assembly of information. It then establishes the rating for each facility with respect to the product or service being rated.

ODM controls dissemination of the information developed by the evaluation process, and reviews ratings recommended by Commerce. It also coordinates the assembly of requirements information used in the analysis upon which the product or service rating is based.

Over 450 products and over 2,300 producers of these products have been rated. In addition, electric utilities, petroleum pipelines, telecommunications, railroads, highways, and other selected nonmanufacturing services have been rated.

As to manpower resources, the growth of our industrial economy and the defense production program since 1950 have provided us with the strongest and most flexible manpower supply in our history. Moreover, labor, management, and the Government have gained a great skill in the mobilization and redistribution of manpower to meet emergency requirements.

Extensive information has been developed on the occupational characteristics of the labor force, on the skill structure of industry and on the distribution of industrial activity. Appraisals have been made from time to time on the

manpower requirements of various levels of mobilization. All these appraisals tend to demonstrate the following basic conclusions:

1. A national emergency would produce acute shortages of highly skilled and professional manpower, but these shortages could be substantially alleviated by redistribution and improved utilization of available resources.

2. Requirements for manpower in jobs of short training time can be met by redistribution of workers in less essential activity, expanding the labor force and instituting intensive defense training programs.

3. Selective Service and military reserve programs have been developed to the point that allocation of manpower between the Armed Forces and essential civilian activities could be far more efficient than in World War II or Korea.

In general, therefore, the manpower mobilization base is adequate and will continue to improve. However, precise calculations of manpower requirements by numbers and occupations are of little value to mobilization planning, since industrial development and technology are proceeding at an accelerating rate. Likewise, the rate of change in weapons systems makes unrealistic the development of detailed manpower requirements beyond those established by current production patterns. Highly detailed manpower studies have been made only in those exceptional cases where it appeared that the preservation of highly critical skills appeared to be threatened. The basic approach has been to develop measures which improve the skills of the labor force and provide effective machinery in being for managing those skills in an emergency. These measures fall in five categories as follows:

1. Stimulation of management, labor, educational institutions, and the public to accelerate training in the trades and professions which would be crucial in time of emergency.

2. Identification of the critical skills and essential activities which would have greatly expanded manpower requirements in wartime.

3. Improvement of governmental arrangements for allocating men with highly developed skills between the Armed Forces and essential defense-supporting activities.

4. Drafting essential manpower plans and procedures for quick and effective action in an emergency.

5. Organizing an effective collaboration between management, labor, and the Government to put these plans into effect if necessary.

These measures provide us with flexible and practical approach to meeting emergency manpower requirements under any circumstances which may occur.

DEPARTMENT OF STATE,
Washington, D. C., May 29, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
House of Representatives.*

DEAR MR. BOLLING: The Department of State appreciates the opportunity to present its views, in response to your letter of May 11, on the relationship between the requirements of American industry for protection to meet defense needs and our foreign economic policy.

Our interest in this matter stems from our responsibilities for the conduct of United States foreign policy involving among other things the development of strong international security arrangements supported by prosperous economies of friendly nations. It has long been recognized that one of the fundamental keystones to assuring our own security is a prosperous, flexible, and competitive domestic economy capable of meeting a broad range of needs. Without such an economy we would be unable to sustain our part of the required defense effort and our position of leadership in world affairs would soon be undermined.

The President in a number of statements has made clear the administration's position that the security of the United States depends not only on the strength of this country but also on the strongest possible coalition among free nations, and that security interdependence is paralleled by economic interdependence. Under this concept of our security we have entered into a number of mutual security treaties such as NATO and SEATO and have given strong support to other groupings of free world nations which are dedicated to the same purposes.

While we receive manifest benefits from these organizations, there are also important responsibilities we must share. As the leading economic power we must foster conditions which promote stability and provide the basis for expansion of our allies' economies along with our own. It is only under such conditions that other nations will be capable of sustaining a significant defense effort and be resistant to subversive forces at work in the world to destroy free institutions. Especially is this important at a time when economic means are more and more being used to penetrate non-Communist countries.

One of the principal purposes of our program to reduce trade barriers is to help maintain a more efficient domestic economy and a higher level of domestic economic activity. Because of the relationship between United States and world prosperity, trade expansion serves also to strengthen foreign economies. For these reasons the administration sought the enactment of renewed trade-agreements legislation providing further moderate tariff-reducing authority on a reciprocal basis.

Assuring the national security is, of course, one of the most important objectives of any government. This is not, however, a simple matter. A policy based on narrow national self-sufficiency rather than on cooperative multilateral effort is neither practicable nor desirable for the United States. We must obtain many strategic materials from abroad not only because they are frequently unavailable in sufficient quantities domestically but also to conserve our own resources. Likewise, the dependence of important segments of our economy on exports requires that we facilitate the exchange of goods between ourselves and countries abroad. Additionally, our economy is one based on commercial considerations as the deciding factors in consumer choice and we believe that competition from whatever source is a stimulant that makes it stronger and more resilient. These aims are served by our foreign-trade program.

In line with our worldwide interests and responsibilities, we have a mutual defense effort encompassing an area of the world far outside our own borders. Mobilization requirements include not only those for our own forces but those for the forces of the allied free nations. Thus we are concerned that there be an adequate mobilization base not only at home but also in allied countries. In part for the purpose of creating military production facilities abroad we have engaged in a large-scale offshore procurement program.

With respect to determining how we should protect industries which supply vital defense needs, the President in his message to Congress on March 30, 1954, transmitting recommendations on foreign economic policy commented as follows: "The Commission (Randall) also recommended that domestic sources for raw materials required for military purposes should be assured by direct means and not by tariffs and import quotas. I believe that normally this is sound."

This general policy seems equally valid today. Clearly, however, we must examine on a case-by-case basis each request for special protection and carefully balance all elements—economic, political, and military—when reaching a decision. While import restrictions may sometimes be appropriate, normally, as the President indicated, other, direct means would be preferable.

In summary, one of the primary bases of our whole foreign policy is that peace can be preserved through the collective strength and deterrent force of a united free world community. Nothing could be more damaging to this concept than a demonstration of our own lack of faith in the capability of this community to meet emergencies. Import restrictions imposed for defense needs, unless fully justifiable, would reveal such a lack of faith and cause consternation and bitterness among our allies. It would, furthermore, represent unilateral action by the United States which would tend to place the burden for needed economic adjustments on our partners. Beyond that is the obvious recognition that unwarranted restrictions tend to lead to counterrestrictions, to a loss of United States prestige abroad, to a weakening of our allies, to additional fears concerning the stability of the United States market for trade, and to the undermining of our international security structure.

In accordance with your request, I am prepared to appear before the committee at any time, or to supply such further information as may be desired.

Sincerely yours,

THORSTEN V. KALLIJARVI,
Acting Deputy Under Secretary for Economic Affairs.

TREASURY DEPARTMENT,
Washington, May 31, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
House of Representatives, Washington, D. C.*

DEAR MR. BOLLING: This Department has given further consideration to your letter of May 11, 1956, and its enclosures relating to the hearings which your subcommittee proposes to hold on the interaction between protection of American industry to meet defense needs and the requirements of our foreign economic policy.

The questions contained in the enclosures raise matters of broad governmental policy in which many Government agencies are interested. As your letter suggested, we have discussed the problem with the Office of Defense Mobilization which has prepared a statement for submission to your committee. We are in agreement with the substance of that statement so far as questions of interest to this Department are concerned, but we wish to comment specifically on one aspect.

This Department believes that the questions raised under question 7, pose broad questions of commercial policy in relation to the need for assuring the mobilization base. It is therefore necessary in each case to balance considerations of defense essentiality against the effects of trade restrictions, having in mind all our objectives, both national and international.

With respect to alternate techniques mentioned in question 6, it is difficult to establish a hard and fast rule favoring the use of any particular one in all cases. Rather, it is felt that the solution in each instance should be determined separately on the basis of all the circumstances and considerations applicable to it. In each case, the impact upon segments of our economy and upon the mobilization base must be studied as well as the effectiveness of alternative remedies and the relation of their use to our international relations. Accordingly, we agree with the Office of Defense Mobilization that each case should be considered on its own merits.

Although we appreciate your invitation to designate a representative to attend the hearings on this matter, we are doubtful that a representative of this Department can contribute usefully beyond the foregoing comments and the testimony which will be presented by Dr. Flemming. However, we will of course be guided by your wishes.

Sincerely yours,

W. RANDOLPH BURGESS,
Acting Secretary of the Treasury.

DEPARTMENT OF LABOR,
Office of the Secretary, June 1, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report, Washington, D. C.*

DEAR CONGRESSMAN BOLLING: I am replying here in more detail to your letter of May 11 requesting that the Department provide written responses to the questions accompanying your letter.

Only three of the specific questions to which answers are requested, specifically items 4c, d, and e, bear upon the direct responsibilities of the Department of Labor. With respect to these manpower questions, I am in general accord with the response provided you by the Director of Defense Mobilization. In the attachment to this letter I am providing somewhat more detailed and specific responses to the manpower questions raised by your letter.

The Department, in the discharge of its general responsibilities for protecting the welfare of workers, has a direct interest in the other questions attached to your letter of May 11, particularly those relating to the merits of alternative techniques for assuring the adequacy of the mobilization base and to the general questions of the interrelationship between the mobilization base and our broader foreign policy objectives. I have therefore reviewed the general statement on these issues presented by the Director of Defense Mobilization, and I am pleased to inform you that I am in general agreement with it.

Sincerely yours,

JAMES P. MITCHELL,
Secretary of Labor.

PROTECTION OF THE SKILLS ESSENTIAL TO THE MOBILIZATION BASE

(Response to committee questions 4c, d, and e)

These questions ask, "Is there a cataloging of the existing resources of industry and an assessment of their capacity to expand essential production?" and specifically, "Do we have good information on needed skills to fulfill essential manpower requirements, and the availability of personnel to fulfill those requirements; do we have adequate studies to answer how quickly we can transfer skilled personnel to more important tasks in an emergency; and do we have adequate information on how long it takes to train new personnel to perform tasks in essential production, considering changing technology?"

There is not now a detailed and specific catalog of skills needed for various specific mobilization plans, although there is information which is adequate to test the general manpower feasibility of various levels of mobilization. As indicated by the Director of Defense Mobilization, a detailed cataloging of the requirements of the industry for specific skills and of the supply of these skills is of limited utility for mobilization base decisions. The accelerating rate of industrial and technological development and the rate of change in weapons systems limits the value of catalogs of detailed manpower requirements for numerous types of wartime activity. Similarly, the flexibility of the Nation's labor force and its adaptability to the changing skill requirements of industry limits the validity of any current cataloging of available skills.

Although we now possess a considerable fund of information with regard to the skill requirements of various industries, the supply of workers possessing these skills, and the related occupations from which these particular skills may be developed, this is not by any means complete nor up to date. It can never be completely up to date or all inclusive by virtue of the high rate of technological change referred to above. Since the end of the Korean emergency, virtually no resources are available in keeping this information up to date. Thus, some of it is approaching obsolescence.

For these reasons, main emphasis is placed upon maintaining a currently adequate supply of the more highly developed and critical skills which, fortunately, are often readily transferable to various types of mobilization activity. For instance, the critical skills of the engineer, the machinist, the tool and die designer and the many other of the most critical skills are found in a wide range of manufacturing industries and are transferable between industries to meet changing requirements. The Department chairs an interagency committee which maintains, through continuing review of such information, a list of the occupations believed to be critical in a full mobilization.

In addition, to the extent that financing is made available, the Department conducts more intensive investigations in those less common situations in which it appears that highly critical skills, which cannot be obtained by transfer from other industries, may be threatened. This approach, involving maximum attention to training in the more flexible skills and requiring only on a highly selective basis a more intensive investigation of wartime manpower requirements and resources, seems to be the only currently practicable approach to maintaining the necessary mobilization base in the field of occupational skills.

The Department also endeavors to keep abreast of the manpower requirements of changing military plans and technology. However, resources have not permitted adequate attention to this phase of mobilization planning.

THE SECRETARY OF COMMERCE,
Washington, June 8, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,
Congress of the United States, Washington, D. C.*

DEAR MR. BOLLING: Reference is made to your letter of May 11, 1956, requesting that we supply certain information, in response to a list of questions submitted with your letter, regarding the relationship between the establishing and maintenance of a mobilization base and our foreign economic policy.

There are set up below our answers to your questions in the order presented. Even though most of the items of questions 1 through 5 relate to the overall responsibilities of the Office of Defense Mobilization, we have submitted answers

to these questions because this Department has important responsibilities delegated to us that involve the subjects enumerated in these questions.

Our responses to the questions follow:

1. The mobilization base is determined in the manner described in parts III, IV, and V of the Annual Report of the Office of Defense Mobilization to the Joint Committee on Defense Production reproduced at pages 104 et seq. of the Fifth Annual Report of the Activities of the Joint Committee on Defense Production, House Report No. 1669, 84th Congress, 2d session.

(a) The assumptions governing mobilization planning as to the time, place, and scope of war are those determined by the Joint Chiefs of Staff and by the National Security Council.

(b) Conversion of existing facilities is one of the factors taken into consideration in the establishment of expansion goals to meet the deficit between anticipated mobilization requirements and the capacity of industry to meet those requirements. The basic criteria now being used in considering expansion goals require that (1) they shall be established only to eliminate those gaps for defense production in the mobilization base that must be filled for the successful prosecution of a war in the event of general mobilization, (2) they shall be based upon existing or potential shortages which, in the judgment of the delegate agency and the ODM, require Government incentives to improve the defense situation, and (3) shall give consideration to substitutes, conservation of critical materials, conversion of existing facilities, and the possibilities of extent of normal or expected increase in capacity.

(c) World War II and Korean experience suggest that the major flow of logistical support will be from the United States outward to its allies in a future emergency. So far as access to raw materials is concerned, the Nation's stockpile policy rests generally upon the premise that in the event of war, supplies will not be available from foreign sources outside continental United States and areas immediately adjacent and accessible.

2. The major premise for mobilization planning within the executive branch is a Department of Defense strategic plan referred to in part III of the Annual Report of the Office of Defense Mobilization at page 104 and following of House Report 1669. As indicated in that discussion, supply mobilization requirements are being determined on two different bases: (1) full mobilization supply and requirements analysis assuming no attack on the continental United States, and (2) supply-requirements analysis assuming that a future war would be initiated by a massive enemy attack on the United States using nuclear and thermonuclear weapons.

(a) There are no differences in assumptions made by different agencies based upon the strategic plan of the Department of Defense which emerges from the recommendations of the Joint Chiefs of Staff to the National Security Council; ODM estimates, with the assistance of its delegate agencies, including the Department of Commerce for industrial capacity, the mobilization requirements for the military, defense-supporting and essential civilian spheres. From time to time questions of an interpretative character may arise which, however, are cleared through and decided upon by the ODM through interagency consultations.

(b) There are general criteria for determining the relative importance of products, materials, and facilities to defense mobilization. To determine the relative importance of some key industrial facilities to defense mobilization, defense production, and the essential civilian economy, a program for making security ratings has been in effect for several years under Executive Orders Nos. 10421 and 10438. These ratings are made by an organization known as the Industry Evaluation Board composed of representatives of the Department of Commerce, Defense, and Interior, Atomic Energy Commission, Federal Civil Defense Administration, and Office of Defense Mobilization. The Board has developed sets of criteria for identifying essential products, services, and critical facilities. The project is a continuing one. The Board has completed its first identification and rating of essential products and critical facilities within major portions of a number of broad industries. Additional industries and segments of industries are in the process of being surveyed by the Board.

3. As explained in the answer to item 1, mobilization requirements are ascertained under the procedure described in the annual report of the Office of Defense Mobilization, pages 99 and following of House Report 1669, 84th Congress, 2d session. Once an estimated requirement for a particular product is identified

by this process, then the plant capacity and manpower required for the production of that item are established to be essential to national defense. The procedure referred to in item 2b above serves to determine the relative importance of such industrial facilities based upon a number of variables such as a surplus or deficit capacity to meet estimated mobilization needs, dispersion, concentration, replacement time, the nature of the technology involved, and access of particular plants to the labor supply

(a) As indicated in 2a above, mobilization planning to determine specific supply requirements is carried out under two distinct strategic plans.

(b) By definition mobilization planning includes the estimation of total national requirements for emergency periods. Total requirements include direct military, defense-supporting, and essential civilian requirements. The balancing which is required in this process is that of estimated mobilization requirements against total national resources, and this is an essential feature of mobilization planning.

(c) The Defense Materials System assigns priorities to materials currently required for defense and AEC programs. Actual priority assignments for defense-supporting and essential civilian production will not be assigned or executed unless or until an actual emergency situation requires such programming.

(d) As indicated above, mobilization planning is essentially the process of determining supply requirements under the two types of assumed emergencies and making such adjustments in those estimates as may be required by the limitations of the Nation's total resources for particular supplies. ODM's delegate agencies which formulate mobilization base recommendations within this framework take the Nation's industrial economy as they find it. This means that in allocating mobilization tasks to meet the mobilization supply requirements, the delegate agencies look to the existing industries producing the particular products or materiel under consideration. The magnitude of estimated mobilization supply requirements is sufficiently great that there has not been a problem of selecting as between industries for the supply of particular products or materiel; rather, the major problem has been of examining the existing and projected capacity of a particular industry regularly producing the item under consideration and determining what measures may be required to increase its capacity in order to meet the estimated supply requirements.

(e) The question seems to confuse the concept of priorities which are an administrative mechanism for insuring that limited supply capacity will be sufficient to meet the most urgent supply needs with the type of determinations which are made by the Industry Evaluation Board, for example, in ascertaining the relative importance of key industrial facilities whose capacity is known to be required to meet the Nation's total supply requirements. The fact that the Government has a security rating program in itself should not be misunderstood as implying that a given plant and its normal complement of managerial, engineering and production personnel can at one and the same time be both essential and nonessential. Once the process of estimating the Nation's mobilization supply requirements leads the delegate agency to conclude that some or all of the capacity of a particular industry or plant is needed to meet the total mobilization objectives, that industry or plant by definition becomes essential to the national security because unless it is available and continues to be available for its assigned purpose, the Nation's total mobilization needs cannot be met. The premise upon which mobilization planning is conducted is that within the framework of the Nation's total resources, reasonably ascertainable material needs must be met to enable the Nation's adequately to cope with a strategic situation apprehended or defined by the military authorities and approved as valid and rational by the National Security Council. Obviously, once such strategic considerations have been identified, the Nation's capacity to respond ascertained, and supply requirements allocated within industry and provided for through the identification of existing plants, the creation of new ones, and the expansion of existing capacity, the greatest disservice is done to the national security when subsequently the same Government, which carried out the initial planning, by preoccupation with other policies permits the fruits of that planning to be dissipated or destroyed by the destruction or removal of a portion of the capacity upon which a successful response to the exigencies of the strategic plan depends.

4. Many of the programs of the Department of Commerce are concerned with a cataloging of existing industrial resources in the United States. The 1954

census of manufactures is the most recent comprehensive and systematic approach to such a cataloging. No thoroughgoing assessment of the capacity of the industry of the United States to expand its capacity for essential production can be made meaningfully in the abstract, such as the question seems to suggest. The process of determining mobilization supply requirements as described in the annual report of the Office of Defense Mobilization, referred to above, results ultimately in an examination by a delegate agency of ODM of the capacity of a particular industry or segment of an industry to meet estimated mobilization requirements for particular products or materials. In this way, judgments are necessarily made by the Government as to the necessity in some instances for an expansion of capacity by particular industries or producers. The annual report alluded to describes a number of the Government programs which are calculated to encourage the managers of industrial capacity to embark upon a program of expansion in those instances where the basic determination has been made that mobilization needs require an expansion of capacity.

(a) A moment's reflection upon the magnitude of the task involved in a cataloging of the capital equipment in use in American industry will explain that there is no overall list of such equipment available, in or out of Government. The executive department is properly concerned with the provision and maintenance of an adequate production equipment mobilization base so that increased requirements for machine tools, metalworking equipment, electric power equipment, etc., which may reasonably be expected to develop during an emergency may be met without appreciable loss of time. This production equipment program is described at pages 109 to 112 of House Report 1669, 84th Congress, 2d session.

(b) As indicated at page 112 of House Report 1669, the Department of Defense has been endeavoring to establish a complete central inventory of the 400,000 to 500,000 items of machine tool and related production equipment it owns. Concurrently ODM has been endeavoring to develop a complete inventory of production equipment owned by all other principal equipment-owning agencies of the Government. These and the elephant tool reserve program described at pages 110 and 111 of House Report 1669 are the chief listings of capital equipment in standby or storage status which are usable by industry in meeting essential mobilization requirements.

(c, d, e) These questions are primarily within the cognizance of the Department of Labor.

(f) The role of research and development in developing the industrial technology of the United States is well known. It is assumed that the question is not directed toward an exposition of the importance of research and development to United States industrial and technological leadership. Research and development programs of many industries, including chemicals, minerals extraction, and instrumentation, yield new materials which find a ready place in meeting the burgeoning requirements of the Defense Establishment for new materials and instruments of war. The availability of a level of earnings which will permit the creation of adequate research facilities and the employment of scientific and technical personnel on a scale commensurate with the needs of a search and development program, is a problem which concerns many of our domestic industries. There is a direct relationship between the capacity of our industries generally to carry on representative research programs and to command representative research facilities which their proper complements of scientific personnel, and the potential of our total industrial economy to sustain the Nation's position of military leadership in the world. The identification of essential industries and the measures appropriate to the preservation of that status therefore necessarily encompasses due attention to research facilities of these industries.

(g) A number of surveys have been made in recent years on the research and development programs of individual industries. From the mobilization point of view, the concern of the Government is manifested by the establishment of an open end goal for the creation and expansion of research and development facilities. At the present time this goal is limited to firms engaged in research and development contracts for the Government or performing defense contracts in which the possession of such facilities would have a beneficial contributory effect.

5. The identification by the Industry Evaluation Board of products, services, and supporting facilities vital to national defense and the ratings assigned to

symbolize their degree of importance or criticality are based upon their industrial essentiality. Although plant location is not a prime factor in establishing ratings, the form in which an IEB analysis is prepared is so designed that the geographical concentration of a single industry segment, as well as production concentration within an individual plant, immediately stands out for those Government officials who have use for such information.

(a) An effort of the mobilization planning agencies of the Government has been concerned with the problem of dispersion or, conversely, measures to safeguard facilities which are located in concentrated areas especially vulnerable to enemy attack. Through industry advisory committee conferences, encouragement has been given to individual industries to make plans for intra-industry programs looking toward dispersion of facilities. The Federal industrial dispersion program also provides for tax amortization incentive for the direction of defense production to dispersed locations. Certification is withheld from projects to be located in congested urban areas unless extreme economic hardship is demonstrated.

(b) The congressional policy contained in the Defense Production Act of 1950, as amended, contemplates the development of productive capacity in the United States which will be adequate to provide for the national defense and national security. The strategic plans formulated as previously indicated, upon which mobilization planning is based, do not contemplate the development of overseas production centers to minimize postulated delivery difficulties in time of war to foreign theaters of operation. It is to be noted, however, that under the military-assistance program the United States has adopted a policy of developing defense production capacity in the NATO countries for the supply of military materiel required by the NATO forces. This, however, is more a measure of assisting our allies to the realization of an adequate mobilization base for their national security as distinguished from a program having any direct relationship to the supply of mobilization needs to the United States in time of emergency. In certain instances where the United States is lacking, or irretrievably deficient, in certain mineral and metals resources within its own borders, the Government has encouraged the production or extraction of these strategic materials through the creation or expansion of facilities located in foreign countries.

6. With respect to this question, we are offering observations regarding the problems, as we see them, in employing the various alternate techniques suggested as a method or methods of protecting the mobilization base. In offering these observations it should be understood that no judgments are being offered with respect to the application of these techniques to any particular product or products. The application of any method such as those suggested will, in the final analysis, depend upon the commodity or industry involved, and the merits can be weighed only on a case-by-case basis. Section 7 of the Trade Agreement Extension Act of 1955 authorizes the President to take action when, in his judgment, imports adversely affect the mobilization base. It is important to note in this connection that the President has practically unlimited authority to govern imports and that the President is the only person authorized to determine, in any given situation, whether action should be taken and the type of action. Undoubtedly, the President would select a method or methods which, in his judgment, would produce the desired result, and undoubtedly these actions would vary from case to case.

(a) The traditional import duties—i. e., duties assessed on an ad valorem basis or specific duties—are not a precise method of regulating imports. What might be a fair import duty, for competitive purposes, at time of establishment of such a duty, may be quite uncertain in its regulatory effect years later when price and technological changes have taken place, either in the country of export or the country of import. Experiences demonstrated that import tariffs established a quarter-century ago are, in many cases, no longer realistic with respect to the original purpose. Furthermore, the uncertainty of the effects of changes in tariffs is recognized in the Trade Agreements Act which provides for escape clause actions.

(b) There are two principal classes of import quotas. First, there is a type of quota which permits imports at a specified tariff rate up to a specified quantity; imports in excess of the specified quantity are then subject to a change in rate. This type of import quota is not a precise method of control of imports at specific and desired levels. It is similar to the general import tariff in its application since foreign producers may be able to export at competitive prices, irrespective of the changes in rates, whatever importing

countries can absorb. Second, there are absolute quotas which are of two general types. One type would permit the importation of a specific quantity of goods on an annual basis. The other general type is a so-called flexible quota which might be adjusted annually or semiannually based upon the total consumption or sales of a product in the consuming country. This type of import quota has been advocated as a fair method of providing a sharing of a total market in a given country by domestic and foreign producers. It is also argued that such flexibility would permit exporting countries to share in expanding world markets and require them to take their share of reductions in world markets along with producers in importing countries. The administration of the flexible import quotas involves a considerable number of problems, among which are the allocating of quotas to exporting countries and the periodic determination of import quotas for varying periods.

(c) Subsidies to domestic producers have been advocated both as a method of relief from the economic impact of imports, as well as for protecting industries which are important to national defense. The chief problem in using subsidies to protect the mobilization base is that of ascertaining a production base; the level of production to be maintained; the amount of the subsidy; and to whom subsidies should be paid. It is quite likely that most industries would find Government subsidies of this kind objectionable, since the Government would be placed in a position of substantial control over industry affairs.

(d) Stockpiling is most appropriate in the case of industrial raw materials such as minerals, and metals. The stockpiling of either finished end products or parts would likely be very costly, in view of the technological changes that take place in both military end products and defense-supporting material. It is quite likely that any such stockpiling would tend to become obsolete in a relatively short time. This situation, however, does not apply to the stockpiling of production machinery and equipment, since these items are accumulated not so much for protection of the mobilization base as to have equipment readily available to expand current production facilities in an emergency.

(e) The use of standby facilities as a method of maintaining a mobilization base has been employed to a considerable extent for military products. Certain facilities, either Government-owned, or Government-owned equipment in private plants, have been maintained by various methods in a readiness condition to resume production on short notice. This would obviously be much more difficult and probably very expensive to achieve in connection with defense-supporting items. In those cases where imports may not be a substantial factor in maintaining an adequate mobilization base, it has not been found practical to maintain the base through the use of standby facilities. In some important instances the difference between the existing capacity for normal commercial production and the necessary additional facilities for full emergency requirements has been met through the acquisition and stockpiling of production equipment.

(f) It is not believed that the use of Government contracts for pilot runs could be fully effective in the maintenance of a mobilization base. Pilot runs are primarily used to familiarize management and production workers with certain techniques in design and production. It is our view that pilot runs are more useful in connection with military items and that such projects can have only limited value to the mobilization base.

(g) The expansion of research and development activities, while valuable in itself in connection with any mobilization base, cannot provide actual plant capacity in a plant or plants for a mobilization base. Technological advancement must be translated into actual production facilities and output, in the production areas required, if it is to be of its greatest value to the mobilization base.

(h) Policies regarding preferential procurement have been issued by the Office of Defense Mobilization and by certain directives by the Department of Defense. Even if employed to its fullest extent, preferential procurement would not, in some of the most critical areas, provide an adequate volume of production to support an adequate mobilization base should there also exist an inadequate commercial market due to imports or for other reasons. It should be pointed out that an Executive order in connection with the Buy American Act provides a minimum differential between domestic and foreign prices in open-market procurement. The Executive order does permit the exclusion of all foreign bids for national defense purposes.

(4) The use of accelerated amortization has been extensively used during the past 5 years in building up the mobilization base. While there is little doubt that this incentive has been responsible for some portion of the expansion of capacity in certain defense areas, it is not deemed a sufficient incentive to persuade management to provide capacity in excess of foreseeable commercial and current defense requirements. Accelerated amortization has fulfilled the mobilization base expansion purpose for which it was authorized and for which it is still being utilized. This form of governmental assistance does have its limitations, particularly in those areas that are being, or threaten to be, affected by import competition.

7. We prefer to answer this question, regarding the relationship of protecting the mobilization base to national objectives, including foreign policy, in a broad way rather than restricted to the specific subjects in the question. Certainly one of our principal national objectives, if not the most important, is that of keeping the Nation in a mobilization readiness posture to meet any international contingency affecting our security and freedom. Our national responsibility to maintain a strong, dynamic, and technologically advancing industrial economy, together with continuous improvement of our preparedness posture, is a responsibility that we cannot share with anyone else. We see no conflict in the pursuit of these objectives, with our foreign economic policy. We know of no aspects of our foreign economic policy which would prejudice either our right or ability to maintain our economic and industrial strength to a maximum level consistent with our national security objectives. It is not conceivable to us that any possible actions we might find necessary to take to protect a mobilization base, either through purely domestic action or action affecting imports, would have any serious or unreasonable impact upon our foreign trade relations. In the context of our total external trade any action that we might take to protect the mobilization base, through governing specific imports, would involve only a small portion of our purchases in the world market. So far as we know, measures taken by friendly foreign countries to maintain and improve their national security in the industrial field, which involve foreign trade, have been accepted by us and I believe we should expect reciprocity. It is our belief that such limited action as has been taken in connection with national security involving imports has been exaggerated both as to the policy implications, the quantity of trade involved, and the effect upon the economies of countries exporting to the United States.

Sincerely yours,

SINCLAIR WEEKS,
Secretary of Commerce.

(Whereupon, at 3:40 p. m., the subcommittee adjourned.)

APPENDIX

UNITED STATES COUNCIL OF THE
INTERNATIONAL CHAMBER OF COMMERCE, INC.,
New York, N. Y., June 5, 1956.

HON. RICHARD BOLLING,
*Congress of the United States,
Joint Committee on the Economic Report,
Washington, D. C.*

DEAR CONGRESSMAN BOLLING: Enclosed is a statement by the United States Council of the International Chamber of Commerce entitled "National Security, the Defense Mobilization Base, and International Trade."

I am forwarding this statement to you on behalf of the United States council for inclusion in the record of hearings now being held by your subcommittee on Foreign Economic Policy.

Sincerely yours,

T. J. WATSON, JR.

Bcc: Dr. Charles S. Sheldon, with copy of statement.

NATIONAL SECURITY, THE DEFENSE MOBILIZATION BASE, AND INTERNATIONAL TRADE

SUMMARY AND CONCLUSIONS

1. There is a growing awareness of the relationship between national security and foreign trade policy.
2. Certain industries and agricultural groups have pressed vigorously for the restriction of competing imports on the grounds of protecting the domestic defense mobilization base.
3. The national security argument for restricting imports has these serious weaknesses:
 - (a) It is an inefficient method of protecting the defense mobilization base and can be a very costly method even though the cost is concealed.
 - (b) It is a clumsy method which aids firms in the protected industry regardless of whether they need help and regardless of the particular firms' potential ability to contribute to the defense effort.
 - (c) By reducing competition within the domestic market, import restrictions may significantly reduce the vigor of our economy.
 - (d) Import restrictions cannot protect the type of economy we need at present, which is an economy built around engineering and managerial skills capable of transferring resources rapidly and effectively from one use to another as defense needs change.
 - (e) Import restrictions cause us to exhaust our own natural resources more rapidly than we otherwise would.
4. Expanding international trade, on the other hand:
 - (a) Strengthens our ties with other friendly nations;
 - (b) Helps them develop their economies;
 - (c) Conserves our wasting natural resources;
 - (d) Particularly helps those domestic industries which are most likely to be of value in any defense effort; and
 - (e) Significantly increases the vigor and pace of technological progress in our economy.
5. For the above reasons the United States Council urges that the Federal Government's defense mobilization policies be designed to foster a vigorous, adaptable economy in which there is rapid technological advance. The council is convinced that growing international trade will contribute to this goal.

6. National security is a vital national concern and it must not be jeopardized by actions which are inadequate or misguided because they are based on narrow considerations rather than the national welfare.

NATIONAL SECURITY, THE DEFENSE MOBILIZATION BASE, AND INTERNATIONAL TRADE

In recent years increasing attention has been given to the relationship between national security and foreign-trade policy. In the interest of national security recommendations have been made designed to increase our foreign trade, but, on the other hand, there have been demands for new restrictions on our foreign trade for the same reason.

This growing awareness of the relationship between trade policy and national security has been reflected in legislation and administrative action. The 1954 extension of the Trade Agreements Act, the basic legislation governing our tariff policy, admonished the President not to reduce the tariff on any item if such a reduction would threaten the domestic production needed for projected national defense requirements. The 1955 extension of this act contains special authority to the President to adjust imports of particular commodities when he finds that they are being imported in such quantities as to threaten the national security.¹

When the President increased the duty on watches in 1954 he cited national defense requirements in partial justification of his action. The Executive order issued on December 17, 1954, for the purpose of clarifying the administration of the Buy American Act contained a special exception in the case of Government purchases which involved national defense considerations. These and other actions demonstrate the increased recognition of the tie between national security and foreign trade.

The claim for special protection from import competition on this ground is being pressed with considerable skill and vigor by various industries and agricultural groups. These industrial and agricultural producers are attempting to demonstrate to the Government agencies responsible for different aspects of foreign commercial policy both their own essentiality to the defense effort and their need for protection.

THE CASE FOR RESTRICTING IMPORTS IN THE INTEREST OF NATIONAL DEFENSE

At least since the time of World War I industrial and agricultural production has been recognized as a key element in the ability of any nation to wage war. It has also been recognized that certain types of production are of more strategic importance than others in the event of war or war preparation.

As the next logical step in the argument, it is recognized that certain products can be produced more cheaply abroad. For some products the difference in the cost of production is such that even after the cost of transportation to the United States is added to the foreign price these goods can still be sold more cheaply in his country than similar domestically produced goods. Various factors can account for this foreign advantage in the production of some items. Lower foreign wages are most frequently cited as the cause. Although not so frequently mentioned, it can also result from richer natural resources; e. g., in lead and zinc, from highly developed craftsmanship or technology and resourceful product development, as in the case of Swiss watches, from an artificially low effective exchange rate, or from other factors.

Whatever the cause of the foreign advantage in particular products, it is true that some of them would provide very stiff competition for the corresponding domestic product if they were allowed free access to the American market. It is possible that they could provide such difficult competition that the domestic production of the item would be eliminated or reduced to a low level.

Those types of production which are both essential for a war effort and

¹ See, Analysis of the Trade Agreements Extension Act of 1955. U. S. Council of the International Chamber of Commerce, August 1955, pp. 7-9, for a fuller discussion of this special authority. The full text of this national security provision reads as follows:

"In order to further the policy and purpose of this section, whenever the Director of the Office of Defense Mobilization has reason to believe that any article is being imported into the United States in such quantities as to threaten to impair the national security, he shall so advise the President, and if the President agrees that there is reason for such belief, the President shall cause an immediate investigation to be made to determine the facts. If, on the basis of such investigation, and the report to him of the findings and recommendations made in connection therewith, the President finds that the article is being imported into the United States in such quantities as to threaten to impair the national security, he shall take such action as he deems necessary to adjust the imports of such article to a level that will not threaten to impair the national security."

subject to this kind of competition from abroad, it is contended, must be protected from the full force of foreign competition. If this is not done domestic production will fall to a level so low that it would not provide a base for rapid expansion to meet war requirements. Taken altogether the group of industries which must be kept ready to expand rapidly is called the mobilization base.

There are a number of reasons, it is alleged, why many forms of production which are essential for security reasons and vulnerable to foreign competition cannot be expanded rapidly in the event of a defense necessity. Some may involve skills which require long periods of training. For others an active and continuous research program may be so essential that they would be unable to expand rapidly unless they had been operating in peacetime at a level which justified a sizable research effort. In the field of natural resources a certain level of activity year in and year out may be necessary in order that adequate exploration and development work, which have notably long-lead times, can be carried on. There are other factors as well. For these various reasons, most if not all of those forms of production which are essential to the defense effort must be maintained in peacetime at least at some minimum level.

The development of new weapons which increase the speed and effectiveness with which military and industrial centers can be attacked only adds to the weight of this argument. In any future war, it is contended, there will not be time for the relatively leisurely mobilization such as we undertook in the Korean emergency. We will need plants in operation at once which can produce the weapons and other goods we require. Furthermore, our mobilization base will have to be large enough to withstand some losses from enemy attack while at the same time continuing to operate effectively.

This chain of reasoning can lead to the conclusion that we must as a normal feature of our foreign-trade policy maintain enough control over imports so that domestic production of essential types can be maintained at adequate levels. Furthermore, it can be pointed out that the United States stands as the principal defender of the non-Communist world and that it is in the immediate interest of all other non-Communist nations for the United States to maintain an adequate mobilization base.

There is a supplementary point to be considered. Even though the overall defense requirements may not have abated, rapidly changing technology may from time to time eliminate the need for certain types of firms in the mobilization base. When this occurs in a situation where, in response to defense needs, capital and labor had moved into a particular type of production which proved to be relatively uneconomic for this country, there would certainly be a case for not subjecting these types of production suddenly to the full force of foreign competition. The whole Nation could be expected for some time to take some of the burden of assisting a redirection of these productive resources into fields where the United States could compete effectively.

This is the essence of the case for restricting particular imports in the interest of national defense although certain other points might be cited in regard to particular products. This line of argument assumes that future defense requirements can be identified with satisfactory accuracy. As a minimum "satisfactory accuracy" means that the national defense effort at least is not harmed by any actions taken to prepare for war through diverting resources into the wrong types of production or through some other miscalculation. It also assumes that on balance the best method of aiding domestic producers in their competition with foreign producers is by means of restricting imports.

Imports can be restricted in several ways, the tariff being the most traditional and widely used in this country. Increasingly, however, those with an interest in restricting our imports for defense reasons have urged the use of other devices. The most important of these is the import quota which provides a more complete control over imports.²

THE ANALYSIS OF THIS CASE

The first step in analyzing this case for restricting imports is to review the efficiency of import restrictions for accomplishing the intended purpose, assuming for the moment that the critical types of production for defense purposes can be adequately identified in advance. There are several important points to be considered. First, is the fact that in every industry there is considerable

²Tariffs and quotas as devices to control imports are discussed at some length in GATT: An Analysis and Appraisal of the General Agreement on Tariffs and Trade, U. S. Council of International Chamber, New York, 1955, see especially pp. 39-41.

variation among firms as to the profitability of their operations. Under normal conditions there are at the margin of each industry firms which are just able to make sufficient profits to keep in business. If the domestic demand for the industry's product declines or competition from abroad becomes more vigorous, it is these marginal firms which will leave the industry (possibly by switching to the manufacture of other products) thereby reducing the volume of the industry's output. It is this group of firms which are just on the verge of unprofitable operations which require Government intervention to reduce the competition from abroad. When the Government acts to reduce foreign competition for these firms, however, it necessarily reduces the competition for all members of the industry.

Beyond knowing that competition for the entire industry is reduced, however, it is very difficult to anticipate the actual effects of increasing particular tariffs. The efficient firms in the domestic industry might decide to raise their prices moderately after the tariff increase and expand production. They might on the other hand decide to raise their prices to the full amount permitted by the tariff and obtain additional profit on the same volume of production. In this latter situation, the ratio of imports to domestic production would not change appreciably but both foreign and domestic producers would probably lose business because of higher prices.

The foreign reaction to the imposition of new import restrictions is predictable to the extent of knowing that it will be adverse to this country. The exact form of this reaction will take is not predictable, however. Foreign producers may decide to cut their profit margins in an effort to maintain their share of the market or they may be driven to cutting costs and improving their product beyond what they otherwise would have done. But under any circumstances United States import restrictions injure foreign producers and the resulting pressures on foreign governments to retaliate against our exports are usually not to be denied. In the past new import restrictions in the United States have caused these and other reactions.

The advocates of import quotas to protect the domestic mobilization base point out that quotas offer more certain results since they establish a fixed quantity of a particular commodity which can enter the country within a given time period. The reaction of domestic producers to a lessening of foreign competition by quotas is just as unpredictable, however, as when the lessening is achieved by tariffs.

Foreign producers have less freedom in their choice of response to import quotas. They cannot, for example, increase their exports to the United States above the level permitted by the quota no matter how far they are willing or able to cut their prices or improve their product.

Whatever advantages quotas may have over tariffs, however, must be weighed against certain disadvantages inherent in the use of quotas. We import most commodities from more than one country, and these imports usually go to more than one domestic distributor or industrial consumer. Since a quota establishes an absolute limit on the amount which can be imported, some system must be sought to divide these imports among the potential sources of supply abroad and among the domestic users. Usually the authorized imports are distributed on an historic basis, but quotas can never be set at permanent levels. Special allowances must be made for new firms entering the field either as producers or consumers. A sudden drop in domestic production of the regulated commodity, such as may happen particularly in agriculture, must be offset by raising quotas. The development of new products which are similar to those under quota may necessitate adjustments. Other factors also require continuous adjustment of the quotas.

This requires the creation of an extensive Government bureaucracy to keep the quotas adjusted to the needs of our economy. Furthermore, since quotas exclude goods which would enter the country if economic considerations alone were controlling, powerful profit motives develop to circumvent the quota system. This entails the creation of an enforcement staff and further Government penetration into the workings of the business community.

The uncertain effects of import restrictions raise some immediate doubts as to their value in connection with the national security. Our mobilization base is too vital to maintain it by unreliable techniques if better methods can be found.

Restricting foreign competition does not necessarily mean that a domestic industry of adequate size will be maintained. Import restrictions only create a better opportunity for the domestic industry, but they do not insure its survival or production at a desired minimum level.

It has been contended that import restrictions are a relatively cheap way of protecting the defense mobilization base. If tariffs are used, the Government even collects money. Appearances are deceiving in this case. If domestic producers are less efficient than foreign producers, there is nothing about reducing the pressure of competition to make domestic producers more efficient. Indeed if anything reducing competition for domestic producers may allow them to become more inefficient. The higher cost of the relatively inefficient domestic production must be paid by someone. Ultimately, of course, it is the consumer: The cost of maintaining the mobilization base by restricting imports is very real, but is concealed with unfortunate results which will be discussed later.

Any Government effort to prepare for possible future wars will require forecasts as to what types of production will be required at the time. Under the best of circumstances accurate judgments as to when particular defense needs may arise and the form they will take in the uncertain future are very difficult to make. The history of past mobilizations is full of accounts of incorrect guesses as to what types of production would be needed and of resulting wastage of resources.

These judgments become particularly difficult, however, when import restriction is used as the technique for maintaining adequate levels of production. This is so because several of the influences which might restrain particular industries from demanding special assistance on defense grounds do not operate when the assistance given is in the form of import restrictions. Since the main cost of maintaining an industry at a given level by means of import restrictions is largely concealed, there is not likely to be much pressure to make sure that only the essential level of production is thus maintained. There is the further fact that import restrictions, at least in the form of tariffs, have been considered unexceptional, and the case for imposing them may not be given careful scrutiny. In other words, when import restrictions are used to protect the mobilization base there is at least a good chance that the review process will be inadequate.

Another point which follows from this is the uncontrolled results of using import restrictions to maintain the mobilization base. When the import restriction device is used, those firms which are in the most exposed locations, or are otherwise poorly located from a strategic viewpoint, are encouraged just as much as those firms which are better located.

There is another consideration of importance in judging how effective import restrictions are for maintaining an adequate mobilization base. The purpose of import restrictions is to reduce competition within the domestic market, yet there can be no question of the fact that competition has been one of the most important influences in making American industry vigorous and efficient. By reducing competition within the country, it is certainly possible that the protected domestic industry would be allowed to grow flabby.

There are many cases which can be cited where foreign competition has played an important part in making American industry more vigorous. American watchmakers lagged behind their Swiss competitors in technology, watch design, and marketing techniques. The lightweight motorcycle market in the United States was first opened up by foreign producers, and foreign bicycle competition has forced increased efficiency on domestic manufacturers.

In an article discussing the effect of foreign competition on three American firms, *Fortune* pointed out that competition from imports has been the only type of competition facing the single integrated American optical producer.³ This competition has helped to stimulate this company to develop new products such as a nonfogging telescopic rifle sight and an inexpensive student microscope.

In the same article there is a brief discussion of what happened to the British optical industry which was given protection from foreign competition for defense reasons. The article summed up the situation as follows:

"Because of the industry's defense role, Britain has banned practically all imports of optical equipment since the end of World War I. The result: Britain has lagged seriously behind the United States and Germany in optical development."

Charles H. Percy, president of Bell & Howell Corp., has often described the problems faced by his firm with competing foreign photographic equipment. He has made it clear that his company has been driven to developing improvements in their products which they never would have made had it not been for this foreign competition.⁴

³ *Fortune*, April 1954, *Tariff Cuts: Who Gets Hurt?* pp. 138 ff.

⁴ See Percy, Charles, *A Free Trader Speaks*, *The Atlantic*, June 1955, pp. 58 ff.

It would be a poor policy which sought to maintain the mobilization base in a way that permitted the essential industries to slow down their rate of technical progress and generally grow less efficient.

The adverse effect of reducing foreign competition raises a fundamental question about what it is that should be protected. The increasingly complicated and rapidly changing demands which the military makes on our economy strongly suggests that the most important features to maintain in our economy are flexibility, adaptability, and vigor. This type of economy can shift its resources quickly to meet new demands.

The Journal of Commerce reported recently that a group of industrialists are urging the Office of Defense Mobilization to make a fundamental review of the whole concept of the present mobilization base.⁵ This group includes John S. Coleman, president of Burroughs Corp., Harold Vance, former chairman of Studebaker-Packard and now a member of the AEC, Thomas Reid, vice president of the Ford Motor Co. and Charles H. Percy. The essence of their argument is that with the revolution in close tolerance work and with increased job specialization the careful training of production workers decreases in importance.

These industrialists point out that in World War II unorthodox speedup training methods produced workers able to perform tasks which formerly had required years of training. Automation has also contributed to the growth of flexibility and interchangeability so that new problems which once would have been serious can be met and overcome quickly. Mr. Coleman has stated that the only limitation on industry today is the ability to find qualified people in the pure and applied sciences. The rapidly changing nature of modern warfare highlights the importance of developing an economy which adjusts rapidly to changing needs rather than one built on present-day skills and patterns of production.

In contrast, restricting imports to protect the mobilization base proceeds on the assumption that existing skills are essential. Import restrictions almost necessarily tend to make the economy more static. Handicraft skills are perpetuated at the expense of the more dynamic industries which are increasingly the backbone of any defense effort.

There are additional considerations involved in the argument to restrict raw material imports competing with our own production. It is true that certain levels of production in this field are necessary to maintain adequate rates of exploration and development of raw material resources. Further, it makes sense to keep this country in a condition such that it can, in an emergency, supply as large a portion of its raw material needs as possible. The capacity to expand domestic raw material production would reduce the demand on shipping facilities in wartime and would reduce the hazard of defense production being disrupted for lack of critical materials.

In spite of this, a policy which seeks maximum self-sufficiency in raw materials in peacetime without regard to the effects on foreign centers of production would be hazardous. It could easily reduce our capacity for self-defense.

There is the inescapable fact that we will exhaust our own resources more rapidly to the extent that we restrict our use of imported raw materials. With less than a third of the free world's oil reserves located in the whole Western Hemisphere, the United States alone consumes well over half of all free world oil, and domestic reserves would disappear rapidly if we used only United States, or even Western Hemisphere, crude oil. Already our lead, zinc, copper, and iron ore deposits, to mention a few, are rapidly approaching high cost, low yield production. Unnecessarily rapid consumption of these reserves will only hasten the day when heavy reliance on foreign resources, in peace and war, becomes inescapable.

The possibility of using lower grade domestic resources exists. Oil-bearing shale and taconite can yield oil and iron, for example, but only at an appreciably higher cost. Higher real costs for raw materials mean a smaller end production for any given input of capital and labor. The more we are forced to rely on high cost domestic raw materials, therefore, the more we restrict the capacity of our economy to produce for peace or war.

Unless we are willing to base our military strategy on the defense only of our own territory, or possibly the Western Hemisphere, we cannot assume in our mobilization base planning that vital sources of raw materials abroad will be lost to the free world. The Middle East, where two-thirds of the free world's oil reserves are located, is a vital source of oil for our allies in NATO. This is

⁵ March 29, 1956.

also the nearest major source of crude oil for United States forces operating in Europe, and the Mediterranean region. There are many other cases where foreign sources of raw materials which are now marginal for the United States are crucial for our friends and allies. If our military strategy assumes that these resources can be used in wartime, our defense mobilization planning should take this into account. If, on the other hand, our military plans assume these resources will be lost, there is all the more reason to take advantage of the chance to use these resources in peacetime and save those we can rely on during a war.

There are other foreign sources of raw materials, of course, which are of critical importance to the United States as well as to our allies. The raw materials necessary to build jet engines are not found in adequate quantity on the North American Continent, for example. There are other vital raw materials which are not found here as well. As our population increases and our own resources are depleted, our dependence on foreign raw materials becomes greater year by year. Complete self-sufficiency is impossible if we wish to maintain our present standard of living.

There are those, however, who advocate that we make ourselves self-sufficient in those raw-material fields where our reserves are at present capable of supplying our needs. In addition to placing an unnecessary drain on our own resources, such a policy could have the effect of reducing our access to raw materials which we must import. If we strove for a greater degree of self-sufficiency in raw materials than economic forces naturally grant us, this would mean the restriction or elimination of certain imports. If we limited raw materials imports widely, the disruption caused in world trade and production could be serious and extensive. A sharp decline in earnings from natural rubber, for example, can affect adversely the economies of Malaya, Indonesia, Thailand, and Ceylon. These countries are also sources of tin, oil, and other materials, and production of these materials can be reduced if economic distress causes political disorder.

Not only are import restrictions an inefficient method of maintaining an adequate mobilization base, but they have other effects which may adversely affect the national security. In the world today we need allies and friends. We need them as sources of strategic materials. We need them as bases for our Strategic Air Command and other military forces. We need the additional military forces which other countries support. But more important than all of these we need friends and allies because we could not maintain our free system of government and our private-enterprise economy in the United States if the rest of the world fell under the sway of totalitarian form of government.⁶

Import restrictions, however, tend to alienate other nations and may often weaken their economies. When we restricted the importation of watches and bicycles several of the nations which sold these items to the United States were injured and offended. When we restricted the imports of such agricultural products as figs, certain types of nuts, and dairy products we not only offended other nations but created serious economic hardship in several friendly and strategically located countries, hardships, incidentally, which the Communists quickly exploited.

Since the United States produces nearly half of the goods and services of all the non-Communist nations combined, our role in world trade is a large one even though it is not large in relation to our domestic gross national product. It is not surprising then to discover that the United States plays a key role in the foreign trade of many countries.

In 1955, for example, the United States bought 60 percent of all Canadian and Philippine exports and 40 percent of Brazil's exports. This country is normally the main market for most of the Western Hemisphere countries. In 1955 the United States took nearly a quarter of Japan's exports and 15 percent of India's. Even though this country does not play such a dominant role in the foreign trade of Western European countries, in 1955 it purchased between 6 and 9 percent of the exports of the United Kingdom, Germany, and Italy.

The importance of the United States as a market for other countries becomes even clearer when one examines the statistics of particular commodities. For example, the United States buys about half of the United Kingdom's alcoholic-beverage exports, half of Indonesia's oil exports, over half of Brazil's coffee, and well over half of Malaya's tin. The list could be greatly extended. Even in less likely products the United States is a significant market. To illustrate,

⁶ For a good discussion of the crucial need for allies see Nitze, Paul, *Foreign Affairs*, January 1956, *Atoms, Strategy, and Policy*.

in the first half of 1955 this country bought 7 percent of West Germany's auto exports and nearly a fifth of Sweden's business-machine exports.

The United States is also, of course, the major supplier of many products to a large number of countries.

Thus import restrictions which may seem of minor importance and interest in the United States often are matters of the gravest consequence to other friendly nations.

One example will demonstrate this point. In 1951 the Congress attached a rider to the Defense Production Act imposing quotas on various dairy products. Although American connoisseurs of cheese may have suffered and although the market may have been improved for domestic cheeses, these restrictions did not demand or receive much attention in the United States. In several Western European countries, however, where dollars are needed to buy essential goods from the dollar area, these restrictions caused economic dislocation and bitterness.

President Eisenhower has frequently stressed the close link between a liberal trade policy and the national security. In his message on foreign economic policy of January 10, 1955, the President said:

"For every country in the free world, economic strength is dependent upon high levels of economic activity internally and high levels of international trade * * *

"From the military standpoint, our national strength has been augmented by the overall military alliance of the nations constituting the free world. This free world alliance will be most firmly cemented when its association is based on flourishing mutual trade as well as common ideals, interests and aspirations."

In January of 1956, the President stated in a letter requesting approval of the legislation which would authorize United States membership in the Organization for Trade Cooperation that the need was "more essential today, now that the Soviets have stepped up their activities on the economic front."

The Secretary of Defense has consistently argued that trade liberalization will contribute to the national security. Assistant Secretary of Defense Gordon Gray, testifying for the Defense Department on the OTC legislation recently stated before the Ways and Means Committee of the House of Representatives:

"It is important for us to keep in mind, I believe, the fact that the Communist threat in the world today is based upon more than an outright military threat. It includes an equally serious threat in the economic, political, and propaganda areas. By approving the Organization for Trade Cooperation, the United States will be showing to friendly countries and others that the free world is presenting a solid front to aggressive threats in the economic area. It will also demonstrate to friendly countries that the United States people, as represented by their Congress, desire a continuity of purpose in promoting friendly, fair, and reciprocal trade relations."

It is clear from these comments that restricting imports for national security reasons will probably harm the national security through the political and economic effects which it has upon our allies.

Since judgments of a strategic nature are implicit in all arguments to restrict imports for security reasons, it seems appropriate to make a few observations on this subject. A growing list of men who have had considerable experience with various phases of defense planning have been calling attention to the novel problems arising in the field of defense planning and the changes which they will require in our thinking.

No one would be foolish enough to try to predict precisely what type of war might be encountered at some uncertain future date. It is entirely possible, and devoutly to be hoped, that we may be able to prevent another major war altogether. We must above all in our preparations to defend ourselves avoid diverting resources into types of production in the name of defense which prove to be useless should hostilities actually come.

There are a few thoughts about future hostilities which are worth considering. On the basis of present technology there seem to be four general types of hostilities which might occur: (a) guerrilla wars such as that in Indochina, (b) limited wars of the Korean variety, (c) general wars in which atomic weapons if used at all are used for tactical purposes only, and (d) general wars in which atomic weapons are used both tactically and strategically. Each of these situations (or any variation or alternative type) presents a different set of problems, but we can be sure that no future war would put the same demands on the American economy as those we experienced in the past.

Neither of the first two types of hostilities would involve a general disruption of world transportation and communication. In the event of either of these types of hostilities, therefore, the non-Communist nations could take full advantage of their combined resources and special abilities. Through international trade they would best be able to pool their strength to meet such a challenge.

The problems involved in a general war where atomic weapons were used, if at all, only for battlefield and other tactical purposes, would be quite different. Many commentators think that this type of war is the least likely on the grounds that it would be impossible to confine the use of atomic weapons in the event of a general war.

This general, but not completely atomic, type of war would probably come closest to the situation experienced in World War II. World transportation might be seriously interrupted, and major centers of industrial production might be destroyed. Even in this type of situation, however, the free world defense capabilities should certainly all be used to the fullest with as little duplicated and wasted effort as possible. If we, on the other hand, protect our domestic mobilization base by unilateral actions which implicitly assume there will be no significant foreign mobilization base, the chances are that we will make our own assumption come true, and an unnecessarily large part of the burden of defending the free world will fall on the United States alone.

Import restrictions necessarily assist domestic production of particular industries at the expense of foreign production. It has been pointed out before that import restrictions are an expensive and clumsy method of protecting defense industries. The effect of United States import restrictions on friendly foreign strategic industrial production is just as capricious as its effect on domestic production. Import restrictions in the first place would injure only our friends since our trade with the Soviet empire is negligible. Import restrictions would not necessarily encourage strategic production abroad in the most desirable places nor limit it in those places of least potential use to the free world. Since import restrictions are a relatively inefficient method of maintaining the domestic mobilization base, they would necessarily do more injury to the foreign mobilization base than would be necessary with more efficient methods.

The importance of the foreign mobilization base is by no means hypothetical. The United States in its own self-interest has deliberately sought to expand the mobilization base both in Western Europe and in Japan. It has done this primarily through purchasing military goods abroad and also by other means. A trade policy built on the conception of a domestic mobilization base which ignores the importance of the friendly foreign mobilization base would be completely inconsistent with our military strategy.

The final type of war which this Nation might face is the all-out atomic war, possibly involving the use of the intercontinental ballistic missile. Obviously, this type of war presents such a completely different set of problems from any encountered before that our whole thinking about national defense must be reexamined. Without doubt one of the most important new factors is the possibility that the first few days or weeks of such a war could be decisive.

If the initial few weeks of an all-out atomic war were decisive, the whole concept of a mobilization base and strategic stockpiling would become obsolete. There would literally not be enough time once such a war had begun to produce any significant quantity of goods and move them to the fighting front. Under these circumstances even plants which were actually producing weapons and other military goods when the fighting commenced would be of little significance in determining the outcome. Those plants which were producing nonmilitary goods could not possibly convert their production in time to be of any assistance, nor could plants which were being held in standby condition come into production.

Of course, there is no way of being sure that an all-out atomic war would be virtually won or lost in the first few weeks. We certainly do not want to take any unnecessary risks with national security, and our mobilization planning must take account of all various possibilities including a long war somewhat similar to those previously experienced.

At the same time, we cannot afford to be wasteful in our preparations. The cost of defense today is so high that we must avoid building or maintaining plants unless there is a reasonable chance that they will be of use. Those who urge that imports should be restricted for the sake of national security certainly have not as yet presented a convincing case that this would be worth the cost, particularly when the harm done to our whole system of alliance and friendly relations is considered.

This analysis of the case for restricting imports in the interest of national security has demonstrated that it contains serious weaknesses. These weak-

nesses probably explain why the President has so infrequently taken steps to restrict imports on these grounds. As of now, the President has only cited national security as a correlative argument for restricting imports in one situation, and in that case he acted under the escape clause, which requires a finding of threatened or actual serious injury to a domestic industry as a result of increased imports following a tariff reduction without regard to security considerations.

THE POSITIVE CASE FOR INTERNATIONAL TRADE IN THE INTEREST OF NATIONAL SECURITY

International trade makes several significant contributions to the economic strength of the United States and to its ability to meet the demands of defense. United States leadership in re-creating a stable system of world trade among the noncommunist nations plays an important role in strengthening the political structure of the whole free world and making the non-Communist nations more willing and able to resist the pressure, whether overtly hostile or not, of the Soviet empire.

Speaking on the need for United States membership in the Organization for Trade Cooperation, which will further help the expansion of world trade, President Eisenhower said:

"Failure of the United States to assume membership in the Organization for Trade Cooperation * * * would strike a severe blow at the development of cooperative arrangements in defense of the free world. It could lead to the imposition of new trade restrictions on the part of other countries, which would result in a contraction of world trade and constitute a sharp setback to United States exports. It could result in regional realignments of nations. Such developments, needless to say, would play directly into the hands of the Communists."

The first important contribution which international trade makes to the national security of the United States is the beneficial effect it has upon the general vigor and flexibility of the economy. The United States is so large that a great deal of internal competition is always present, but there are some vital areas where foreign competition has played an important role in keeping our technology up to date. Jet engines, electronics, watches, optics, and photographic equipment are but a few of the fields of industrial production where foreign competition has been the spur to better technology and more efficient production in this country. Without foreign competition in these and other fields one of the major incentives to better and cheaper production in the United States would be removed.

On a national scale we can see from the experience of other nations what the removal of international competition can do. Those nations in Western Europe which have progressively opened their domestic markets to foreign competition have recovered from the ravages of World War II and increased their total output with greater speed and efficiency than those nations which have sought to protect their domestic economies from these forces.

Willingness on the part of the United States to encounter and encourage more international trade and competition plays a significant part in determining the willingness of other nations to do likewise. When we encourage more international competition we thereby strengthen the economies of all our friends as well as our own.

International trade, as has been pointed out before, can help this country preserve its exhaustible natural resources.

There is another important consideration which has particular significance for this country. If a nation wished to prepare in peacetime to meet wartime demands, logically it should seek to develop those industries which are particularly adaptable to wartime production. Since the wartime demand for the products of these industries would in most cases be greater than the peacetime demand, the alternatives would be to have idle standby capacity or to export the surplus of these industries.

On the other hand, there are those industries whose production would be restricted in wartime either because the techniques of the industry were suitable only for the production of nonessential goods or because the raw materials for the industry would simply be unavailable. A nation seeking to strengthen its defense capacity in peacetime would logically not wish to give particular encouragement to the growth of these industries since they would be a complete loss in the event of war. It would be better to satisfy the peacetime domestic demand for the products of these industries through imports. In this way

consumers would not be deprived unnecessarily of goods they desired, and the nation's resources would not be tied up in nonstrategic production.

If a nation had a natural economic advantage in producing luxury items, as some do, and a natural disadvantage in the types of production which could be converted to war use, then foreign trade would tend continually to unfit the country's economy for defense production. If the government of that country wished to prepare its economy for a defense effort, it would have to do so at a real sacrifice since it would have to distort the country's natural trade pattern and divert the country's production, at least in part, into fields where it was relatively less efficient.

The United States is happily not in this position. Insofar as any nation's foreign trade could be ideally suited to encourage those industries which are potentially of most value for a defense effort, this country's foreign trade is. Thus we export autos, trucks, farm machinery, heavy equipment of all types, electrical machinery, and chemicals in substantial quantity. Our imports on the other hand tend to be raw materials which we would have to import in any event and luxury and semiluxury items. Our foreign trade is very well suited, therefore, to help strengthen our economy to meet possible future defense demands. A further expansion of our exports and imports along the natural economic lines would tend to further strengthen our potential defense capabilities.

All of the foregoing is not to deny that there may be instances where industries in the United States of great strategic importance are unable to meet the full force of foreign competition unaided. In the case where this proves true, some special measures which do not have the many disadvantages of restrictions on competing imports can surely be found.

SOME SUGGESTIONS FOR MAINTAINING THE MOBILIZATION BASE

If import restrictions are an inefficient and even dangerous method of protecting the mobilization base, other means must be found to do what is required for the national security. Although this organization is not in a position to develop a comprehensive plan for protecting the mobilization base since this would require access to classified information, some suggestions can be made.

It can be taken as a fact that future defense needs will be constantly changing and that they are at best only partially predictable. Under these circumstances the basic objective of any plan to maintain a mobilization base sufficient for national security should be to foster an economy which is vigorous and flexible and which encourages rapid technological development. It should be an economy which can withstand considerable punishment and still adjust rapidly to the changing needs of defense. In order to be consistent with our military strategy, which relies heavily on a system of alliances, our mobilization base policies must take full account of the effect which our actions have on the mobilization base in other friendly countries.

In general the policies which will promote a strong economy are understood and in considerable measure are now being followed. Policies which encourage greater competition, both foreign and domestic, which give an incentive to new investment and leave private businessmen free to make their own decisions all contribute directly to a vigorous economy. It is our belief that these policies should be followed so as to create a generally strong economy within a strong, free world.

It is entirely possible that there are some special situations where general policies of this sort will not be adequate to meet all our mobilization base needs. There may be some particular industries so important to the national defense that they must be maintained even though they are not thoroughly competitive. The evidence suggests that such cases will prove to be rare.

The Government should take care to make sure that the industries picked to receive special assistance are those of genuine strategic importance and that the type of assistance rendered does not injure the vigor of our own economy or the economies of other friendly nations. The special machinery being established within the Office of Defense Mobilization should be able to perform this function taking into account all of the relevant considerations. If domestic political pressures are allowed to influence these decisions, however, the national security may easily suffer.

Where direct assistance of some sort is required, it should be tailored to fit the particular case. Direct assistance of this sort has many advantages over the indirect assistance given by limiting the competition of imports. The Govern-

ment can assist those firms in the industry which are of maximum potential defense value, and it can obtain commitments in return from the aided firm that it will undertake, in the event of a national emergency, to play a particular role in contributing to the defense effort. The cost of direct assistance to the American public would be smaller since only the firms would be aided whose contribution to the defense effort would be deemed worth the cost of the direct aid. Any program of direct assistance should be carefully scrutinized regularly, and it should be adjusted regularly to meet changing conditions.

The national security is obviously one of our most vital concerns. We cannot afford to have our national security jeopardized by policies which are inadequate or improper because they are based on narrow considerations rather than the national welfare. We owe it to ourselves to place more importance on the security and prosperity of the whole Nation than on some more limited objective.

SUPPLEMENTAL STATEMENT OF AMERICAN WATCH ASSOCIATION ON PROPOSED
"UPJEWELING" LEGISLATION

In testimony delivered on Monday, June 4, Mr. Percy Bidwell referred to the practice of upjeweling as a means whereby American watch importer-assemblers are avoiding the payment of the \$10.75 duty on above-17-jewel movements. Subsequently, there was testimony that upjeweling was made possible by a loophole in the Tariff Act—a loophole which, it was alleged, should be closed through passage of legislation which is now pending before the House Ways and Means Committee.

This paper will briefly present facts concerning the upjeweling situation and the bill which was introduced at the request of the Treasury Department.

The bill would amend the Internal Revenue Code by assessing an \$8 tax on watch movements which are processed in the United States to increase the jewel count to more than 17 jewels. The Treasury Department's stated purposes in requesting the legislation are: (1) to prohibit American watch importer-assemblers from remanufacturing their merchandise so as to increase the jewel count, and (2) to invalidate T. D. 54095 issued by the Treasury Department on May 25, 1956, which confirmed the established right to import separate self-winding mechanisms. A copy of this decision is attached hereto. The Treasury's acknowledged intent is to grant a monopoly in the market for high-jeweled, popular-priced watches to the three American jeweled-watch manufacturers.

As explained below, such legislation is completely unnecessary and discriminatory; totally unprecedented; directly contrary to basic United States foreign trade objectives; a violation of United States foreign agreements, and bad public policy.

UNNECESSARY AND UNFAIR

The percentage of imported movements which have been remanufactured to higher jewel counts is very small—less than 1 percent at the present time—and the effect of so-called upjeweled watches on the sales of the domestic manufacturers is negligible. No watches are being imported which are specially designed to ease the substitution of jewels for metal elements; only conventional movements are now entering the United States. Thus, the bill is not aimed at preventing the importation of specially designed movements containing devices which ease the upjeweling operation; it is aimed at preventing the remanufacture in this country of conventional watch movements.

The practice of remanufacturing watches to increase the jewel count has been followed in this country for more than 35 years and is in no respect a deception, nor an evasion of the intent of Congress. The Congress, executive departments, and the courts were all fully aware of upjeweling practices at the time that the 1930 Tariff Act was passed.

As a matter of fact, in those days, one of the firms which was conducting upjeweling operations on the broadest scale was the Bulova Watch Co., which is now loudly proclaiming that upjeweling is an evasion of the law. Of course, at that time Bulova relied solely on imported movements and had no United States watch-manufacturing operations. The fact is that it was the Bulova Watch Co. which won a test case in the customs court in 1933—only 3 years following passage of the Tariff Act—clearly establishing the right of watch importer-assemblers to substitute jewels for metal bearings (*Bulova Watch Company v. United States*, 21 C. C. P. A. 156 (1933)).

The customs courts were, of course, fully aware of the legislative history of the 1930 Tariff Act, but in the Bulova case and subsequent court tests it has been firmly and consistently established that upjeweeling is not a deception nor a loophole. Rather, this remanufacturing operation is in keeping with the pertinent provisions of the Tariff Act, and is similar to work performed on thousands of other imported items.

While the total number of movements being remanufactured to higher jewel counts is small, American watch importer-assemblers are convinced that their future ability to compete effectively may well be dependent upon their right to offer above-17-jewel merchandise, particularly in certain styles and designs. This is because newer designs of watches containing special features (i. e., self-winding devices, calendar mechanisms, etc.) require more than 17 jewels in order to perform with maximum efficiency, and because the promotion campaign by the domestic manufacturers is creating an increasing demand for high-jewel products.

Last fall, American importer-assemblers requested from the Treasury Department formal confirmation that the present tariff law permits the importation of 17-jewel movements designed for the later incorporation of self-winding devices (as specifically provided in par. 367 (a) (5)), and the separate importation as subassemblies of jeweled self-winding mechanisms which could be incorporated in such movements (in accordance with par. 367 (c)). The Treasury tentatively confirmed this interpretation on January 19, 1956, and issued a formal ruling to this effect on May 25, 1956, (T. D. 54095). This ruling reaffirmed the rights which importers have always possessed under the 1930 Tariff Act, and which enabled them to offer high-jewel, self-winding watches at competitive prices. Meanwhile, however, bowing to pressure from the domestic manufacturers, the Treasury had requested introduction of the pending bill designed to reverse the longstanding interpretation which it has only recently reaffirmed. No businessman can conduct his affairs amidst such continually fluctuating policies.

It should be clearly understood that paragraph 367 (a) (5) of the 1930 Tariff Act specifically assesses an additional duty of 75 cents on each imported movement "if a self-winding device may be incorporated therein." Further, paragraph 367 (c) specifically assesses duties on assemblies or subassemblies, such as the separately imported self-winding mechanisms. Thus, Congress clearly contemplated the fact that importers would bring in movements and self-winding devices separately. It is completely erroneous to say that when importers follow this procedure they are taking advantage of a loophole in the law. The word "loophole" implies that a procedure is being used which was not contemplated by the drafters of the legislation. In this case, far from closing a loophole, the pending bill would actually eliminate practices which were obviously contemplated by the Congress and would wipe out rights which watch importer-assemblers have always enjoyed under the 1930 statute.

Clearly, if there are any problems which arise from upjeweeling, they can be resolved by administrative action. Legislation is not only unnecessary, but the pending bill is totally unfair and poses a major threat to the future of hundreds of American importer-assembler companies and their thousands of American employees and stockholders.

UNPRECEDENTED

There is absolutely no precedent for a processing tax such as is contemplated in the proposed bill. No such tax has ever been imposed on a nonagricultural product. And in the case of the very few agricultural commodities where a processing tax is imposed, there are unusual and isolated factors which clearly do not apply to the watch industry.

American economic history reflects the benefits of importing raw materials and semifinished products, and applying American skills and machinery in order to convert these imported articles into finished consumer goods. This is now accepted practice throughout American industry. A processing tax, which puts a penalty on the use of American labor and machinery, would be directly contrary to this basic policy, and could prove to be a precedent for processing taxes on almost every industry in the country utilizing imported materials or parts.

The Government has already seen that resort to extraordinary measures to aid the domestic watch industry inevitably leads to a demand for similar application in many other industries. The adoption of a processing tax in the watch industry would surely lead to innumerable demands by many other domestic manufacturers for similar discriminatory taxes against importers. Approval

of the pending bill would open a Pandora's box of protectionism which would be impossible to control.

CONTRARY TO FOREIGN TRADE OBJECTIVES

In proposing this bill, the administration is taking the position that American workers should not be allowed to perform manufacturing operations on foreign goods. The effect of such legislation would be to downgrade the quality and the value of foreign products coming into this country. Nothing could be more destructive to commerce among the friendly nations. Nothing could be more contrary to the basic United States foreign economic policy.

The United States has long committed itself to the principle that internal taxes and regulations should not be used as a substitute for tariff protection. Underlying this policy is the principle that taxes for protective purposes should be levied at the customs frontier. Once an imported product has passed the customs barrier it should not be subjected to discriminatory treatment in favor of domestically manufactured merchandise.

Yet, the pending bill violates this cardinal principle of our foreign economic policy. It proposes a major change in United States customs procedures through an amendment to the Internal Revenue Code, rather than following the proper procedure of amending statutes which deal with foreign trade. If the Congress should decide that the watch tariff provisions of the 1930 Tariff Act are in any way defective, the proper procedure would obviously be to correct such deficiencies, rather than resorting to the subterfuge of attempting to impose hidden barriers to trade by adding new and unprecedented internal taxes.

Thus, the bill has implications far greater than its impact on the so-called upjeweling question. If adopted, it would be used as an excuse by other governments to impose internal taxes on imports of United States goods that may nullify the concessions granted our exports. This country has frequently urged foreign nations to refrain from exactly this type of discriminatory taxation against American products. How can we talk out of both sides of our mouth and expect to hold the respect of our friends overseas.

VIOLATION OF UNITED STATES AGREEMENTS

It should be understood that, in practice, the processing tax would be assessed only against imported movements, and never against domestic products. It is therefore apparent that imposition of such an internal tax—in addition to being inconsistent with basic United States policy as established in the GATT Agreement—would be a direct violation of the 1936 United States-Swiss trade agreement. Article IX of this agreement reads as follows: "Articles the growth, produce, or manufacture of the United States of America or Switzerland, shall, after importation into the other country, be exempt from all internal taxes, fees, charges, or exactions other or higher than those payable on like articles of domestic origin or any other foreign origin."

UNWISE PUBLIC POLICY

It is evident that the sole objective of this bill is to reserve for the domestic manufacturers a monopoly in the high-jewel watch market, a monopoly which stems from the prohibitive \$10.75 duty on above 17-jewel imports. It costs a domestic manufacturer very little more (about 20 cents) to produce a 21-jewel rather than a 17-jewel movement. In contrast to the 20-cent cost to the domestic producer, the remanufacturing involved in upjewelling processes costs even the most efficient importer-assembler firms between \$1 and \$2 per movement.

The proposed bill would add \$8 more to this cost differential through the imposition of an unwise and discriminatory processing tax. If any legislation is considered to end upjeweling, it should be a reduction in the exorbitant \$10.75 duty.

Surely, it is most peculiar for a Government presumably dedicated to curbing monopolies to advocate a bill flatly to eliminate competition in an important segment of the watch market and to deprive the consuming public of a choice of high-jewel, popular-priced watches. The bill, with this plainly indefensible purpose, becomes even more objectionable when it attempts to achieve its goal through a device which violates basic tenets of United States foreign economic policy.

DEPARTMENT OF THE TREASURY

BUREAU OF CUSTOMS

(T. D. 54095)

WATCHES AND WATCH MOVEMENTS TARIFF CLASSIFICATION

MAY 25, 1956.

Certain movements engineered for the later addition or incorporation of self-winding devices are classifiable under paragraph 367 (a) (1) through (5), Tariff Act of 1930; self-winding devices or mechanisms imported in separate shipments are classifiable as assemblies or subassemblies under paragraph 367 (c).

Reference is made to the notice of prospective tariff classification of certain self-winding watch movements published in the Federal Register dated January 19, 1956 (21 F. R. 400).

The question presented is the tariff classification of the following when imported in separate shipments:

- (a) Watch movements containing 17 or a lesser number of real or synthetic jewels (including substitutes for jewels) engineered for the later addition or incorporation of self-winding devices, and
- (b) Self-winding devices.

The Bureau has given the most careful consideration to all written submissions, oral presentations, and other evidence presented to it.

In view of the fact that paragraph 367 (a) (5), Tariff Act of 1930, as modified, provides in part for an additional duty of 75 cents on any article covered by paragraph 367 (a) (1) through (4) "if a self-winding device may be incorporated therein," the Bureau is of the opinion that certain movements engineered for the later addition or incorporation of self-winding devices are classifiable under paragraph 367 (a) (1) through (4) subject to the additional duties provided under subparagraph (a) (5). The fact that watch movements are engineered for the later addition or incorporation of self-winding devices does not, standing alone, result in movements specially engineered, constructed designed, or prepared to facilitate upjeweling after importation within the meaning of Treasury Decision 53753.

The Bureau has concluded that watch movements containing not more than 17 jewels (including any substitutes for jewels) which, when stem wound, will keep accurate time for at least 24 hours in their imported condition without the utilization of self-winding mechanisms are classifiable as watch movements under paragraph 367 (a) (1) through (5), Tariff Act of 1930, as modified. The self-winding devices imported in separate shipments from the movements are classifiable under paragraph 367 (c), as modified, as assemblies or subassemblies dutiable at the reduced rate of 2 cents for each part or piece and 9 cents per jewel (including any substitutes for jewels), but not less than 45 percent ad valorem.

[SEAL]

RALPH KELLY,
Commissioner of Customs.

(F. R. Doc. 56-4292; filed, May 31, 1956; 8:49 a. m.)

SUPPLEMENTAL STATEMENT OF AMERICAN WATCH ASSOCIATION ON WATCH
ADJUSTMENT DUTIES

In testimony delivered on June 4, 1956, Mr. Percy Bidwell made the allegation that as a result of improvements in Swiss manufacturing techniques, duties assessed under the watch-adjustment provisions of the 1930 Tariff Act are not being collected to the extent originally contemplated by the Congress. In the opinion of the American Watch Association, this is a complete misstatement of fact. This memorandum is intended to summarize the true situation in regard to the adjustment provisions of the 1930 Tariff Act.

In the watchmaking art, a small proportion of the better quality watch movements have traditionally been subjected to certain additional operations; after the completion of normal manufacture and regulation, in order to assure that these fine movements run to a high degree of accuracy under various temperature

conditions, in various physical positions, and regardless of whether the main-spring is tightly wound or partly run down. These postmanufacturing tests and manipulations are known as adjustments.

The Tariff Act of 1930, as amended, imposes a duty of 50 cents for each adjustment which is made on an imported watch movement. The great bulk of imported movements are not subjected to these postmanufacturing operations and thus are marked "unadjusted" and pay no adjustment duties. A small proportion of imported movements, which are used in the finest watches, are subjected to these postmanufacturing tests and manipulations, are therefore, marked to show the number and kinds of adjustments, and pay the adjustment duties.

The domestic watch manufacturers have been claiming that because of improvements in metallurgy and watchmaking techniques, the average movement which comes off the assembly line is a better timekeeper, and therefore should be considered to be adjusted. They claim, for example, that certain alloys and designs used in hairsprings and balance wheels of watch movements automatically compensate for variations in temperature and spring tension (known technically as isochronism), and that, as a result, certain adjustments are built into the watch—a claim that Mr. Bidwell seems to have accepted without delving into the merits of the situation.

The fact is that the adjustment provision of the 1930 Tariff Act has been interpreted consistently and properly since its enactment 26 years ago, despite numerous efforts by the domestic manufacturers to warp its purposes along the lines reflected by Mr. Bidwell. In 1939 and 1940, the Treasury Department conducted an extensive survey of the matter during which all segments of the American watch industry presented their views. At the conclusion of this study on November 25, 1940, the Department issued Treasury Decision 50277 (3), outlining the circumstances under which a movement could be properly imported as unadjusted. This regulation, which gave an official interpretation of the intent and meaning of the Tariff Act provisions pertaining to adjustments, has been strictly followed by importers and customs officials for the past 15 years.

The domestic manufacturers have appealed to the Treasury Department on several occasions for a review and revision of this regulation. As a matter of fact, the Treasury Department has conducted a continuing series of inquiries since 1950, during which all points of view have been presented. Last fall, an official Government delegation visited watch-manufacturing plants in this country and 28 factories in Switzerland, making a most thorough analysis and report on the adjustment situation.

As a result of all of this intensive study, which has been conducted under both the Democratic and Republican administrations, the Treasury Department issued a ruling on February 3, 1956 (T. D. 426.843), reaffirming its 1940 regulation and flatly rejecting charges that there has been any appreciable avoidance of duties intended by the Congress. This Treasury decision settles, once and for all, the fact that the concept of "built-in adjustments" is fallacious. It flatly confirms the fact that the Congress intended adjustment duties to be assessed only on watch movements which have been subjected to skillful post-assembly tests and manipulation.

It should be understood that the adjustment provision of the 1930 Tariff Act has been interpreted consistently for the past 26 years. The domestic manufacturers have had the right to challenge this interpretation in court if they believed that the duties were not being properly collected. It is interesting to note, however, that they have never brought such a suit for the simple reason that they realize their charges would be rejected.

There are many reasons why the concept of "built-in adjustments" is fallacious, and why the Treasury regulation and the 1930 statute should not be changed in this respect:

(1) A review of the legislative history leading to enactment of the watch adjustment provision of the 1930 Tariff Act clearly demonstrates that Congress intended these duties to be imposed only on the relatively few fine movements which are actually subjected to expensive post-manufacturing tests and manipulations involved in the adjusting process. Testimony by the domestic manufacturers and the leading importers (who, incidentally, had reached agreement on the language and intent of the provision) reveals that no one intended that these duties would be imposed on the vast majority of imported movements, which are used in popular-priced watches.

(2) Congress had two purposes in mind when it approved the adjustment provision: (a) The primary intent of Congress was to prevent mismarking—that is, to prevent movements which had not been subjected to the adjusting process of

post-manufacturing testing and manipulation from entering this country improperly marked as "adjusted"; and (b) a secondary purpose was to give a higher rate of duty protection for the very finest American-made watches, which are adjusted by expensive tests and manipulations after their normal manufacture, assembly and regulation. Congress intended the adjustment duty to be levied against the relatively small number of imported watches which had been similarly adjusted, in order to compensate for the labor cost involved in the expensive adjusting process.

(3) Since its enactment in 1930, the Tariff Act has been completely effective in fulfilling these two basic objectives of the Congress. No movements are entering this country marked "adjusted" unless they are truly adjusted; the bulk of imported movements, including all popular-priced movements, are correctly marked "unadjusted." In addition, of course, the law is giving a very-high rate of protection to those finer domestic movements which are adjusted, by imposing several dollars of additional duty on adjusted imported movements.

(4) Many of the finest watches manufactured in this country and abroad are still subjected to the time-honored adjusting techniques. While it is true that improved manufacturing processes have decreased the importance of adjusting movements, particularly for the temperature and spring-tension (isochronal) adjustments, it is also true that the finest watches are still subjected to the extensive post-assembly tests and manipulations that were performed when the 1930 Tariff Act was passed.

(5) The theory of "built-in" adjustments is, actually, an attempt to redefine the entire concept of the word "adjustment." It is important to recognize that the term "adjustment" refers to a complicated process, and not merely to a condition of the watch. The fact that a watch runs fairly accurately has nothing to do with whether or not it has been adjusted. It is significant that when Congress was considering this legislation, a proposal was submitted—and formally rejected—which would have assessed adjustment duties on the basis of how accurately a watch kept time. Congress also had under consideration at that time a proposal that the use of certain materials and certain forms of watch construction should be directly the subject of duty. Again, Congress rejected this proposal. Thus, in direct contradiction of Mr. Bidwell's remarks, the fact is that the Congress carefully considered and turned down the concept that the use of certain designs and alloys can automatically introduce "built-in" adjustments.

(6) The same alloys that are used in the hairsprings, balance wheels and other parts of Swiss movements are used by the American watch manufacturers, and are available to them at similar prices. Therefore, the imposition of an additional duty on an imported watch merely because it uses these materials makes no sense. The only sound reason for adjustment duties is to compensate for higher manufacturing costs, such as labor cost involved in going through the time-consuming testing and manipulating processes involved in the traditional adjusting concept. To impose a higher duty merely because a watch runs better than was the case in 1930 would be to penalize progress abroad—even though the same improved techniques are available in this country at no differential in costs.

(7) There has been no substantial change in the types of alloys going into watch springs or other parts since 1936, when the United States-Swiss trade agreement was signed. At the time of that agreement, the same alloys were being used that are used today, and the tariff provision pertaining to adjustments was being enforced in exactly the same manner as is the case today. Therefore, any change in the Treasury regulation or in the Tariff Act to impose additional duties because of the properties inherent in these alloys would be a direct violation of the 1936 trade agreement.

(8) There is no doubt that a change in the Treasury regulation or the Tariff Act provision pertaining to adjustments is being advocated by the domestic watch manufacturers primarily to obtain a higher rate of protection. This is nothing except an attempt to obtain an increase in the duty rates by indirection—an increase which would be far greater than the 50 percent jump in duties which was imposed less than 2 years ago. The domestic manufacturers do not need and should not obtain a further increase in duties for the many reason which were put forth in the basic presentation by importer-assembler witnesses.

Clearly, it would be most improper to attempt to satisfy the protectionist ambitions of the domestic manufacturers by warping the purposes of the adjustment provision of the Tariff Act. The statute and the Treasury regulation, which have worked well for 26 years, should not be changed.

WASHINGTON, D. C., June 8, 1956.

HON. RICHARD BOLLING, *Member of Congress,*
Chairman, Subcommittee on Foreign Economic Policy,
HOLC Building, Washington, D. C.

DEAR MR. CHAIRMAN: I have heard that after I had, unfortunately, to leave the hearing on Monday, June 4, 1956, certain questions were raised as to whether our tariff or import quota policy should be used to counteract the influence of foreign cartels. I am not familiar with the Swiss watch industry, as I stated at the hearing, but I have had some experience in the relationship of our antitrust laws to national defense and national security, and it is my belief that if you are concentrating your attention on the requirements of national security, the policing of cartels has little relationship to that objective.

During World War II, we found that strict enforcement of the antitrust laws, was in many instances, inimical to the military effort to win the war. You will remember—and I am certain that you can document this completely from the files of the Department of Justice and the military departments—that President Roosevelt delegated to the War and Navy Departments the power to stop the prosecution of antitrust suits which interfered with the war effort.

In the Navy Department, that duty was performed under my direction. As I remember the arrangement, a cease-and-desist order from the War or Navy Department was binding on the Attorney General unless he felt the matter should be referred to the President for final decision. Under that arrangement, we found it necessary to stop many antitrust suits. The theory advanced by certain people in the Department of Justice, that the enforcement of the antitrust laws benefited national defense, was set aside during the war.

I am a firm believer in our competitive system. I think it has contributed greatly to our industrial strength and mobilization base. I wish all foreign nations felt the same, but I must face the fact that they do not yet agree, although I believe our philosophy is spreading.

At the same time, I believe that enforcement of the antitrust laws, particularly with respect to foreign nations, is a most delicate problem, cannot be handled through the statutory imposition of import quotas or tariffs, and should be handled through the judicial process rather than through the legislative or executive.

Very truly yours,

H. STRUVE HENSEL.

WASHINGTON, D. C., June 9, 1956.

HON. RICHARD BOLLING,
Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on Economic Report,
House Office Building, Washington, D. C.

DEAR CHAIRMAN BOLLING: My attention has been called to a statement of Mr. Arde Bulova made in his testimony before your committee on June 6 that he—" * * * found it a little bit difficult to reconcile the statement of Mr. Anderson that these specialized watch skills were easily obtainable from other industries—with the statement of Mr. Lazrus that he had not been able to start a watch manufacturing operation in the United States because the necessary skills are only available in the Elgin, Hamilton, and Bulova plants."

Since Mr. Bulova's statement apparently rests on a misconception of the views shared by Mr. Anderson, myself and the American importer-assemblers who make up the American Watch Association, it would appear essential that the record be clarified on this point.

Perhaps Mr. Bulova's most fundamental error is in his stating that the position taken by Mr. Anderson is that it is specialized "watch skills" which are easily obtainable from other industries. Whether watchmaking or horological skills are so obtainable is really beside the point. It has been my understanding that your committee's inquiry is not concerned with watch skills, but rather with the basic question of defense skills, and particularly whether the watch industry possesses, in addition to its ability to manufacture watches, unique skills essential to defense.

The whole thrust of Mr. Anderson's testimony—which Mr. Bulova chooses to ignore—is that watchmaking or horological skills are not the skills which are vital to our national defense and security. For the reasons documented in our presentation to the committee, it is the firm conviction of Mr. Anderson, myself,

and many others that the essential defense skills are not those of watchmaking, but the more fundamental skills of tool and die designers and highly trained engineers which enable American industry to mechanize production to the degree that essential defense items meeting the most minute tolerances can be turned out on the assembly line with a bare minimum of skilled workers.

Mr. Anderson and I are completely in accord in our view that it is these paramount skills—and not watchmaking skills—which are the key to essential defense production. Moreover, it should be pointed out that virtually every independent witness appearing at the hearing who dealt with this point was also in full agreement. The statement made by me, to which Mr. Bulova referred, was concerned with nothing more significant than the problem faced in starting a new manufacturing operation to turn out any product of any appreciable degree of complexity, be it watches, outboard motors, tractors, lighting fixtures, etc.

Any new undertaking of this type will almost certainly run into serious difficulties unless there are available experienced key personnel, with production background, know-how, and skills relating to the particular product, who can get the enterprise underway and guide it. This is as true in the case of starting a new watch manufacturing plant as it is in plants for other products.

The point I touched on in my testimony was that with only three domestic manufacturers of jeweled watches—all of whom understandably stand jealous guard over their best personnel—anyone interested in entering the field will find it virtually impossible to find men well versed in watchmaking. In addition, as I discussed at some length before the committee, one of the basic problems insofar as the domestic watchmaking industry is concerned is that it has not placed sufficient emphasis on watchmaking skills and is far behind the Swiss in horological talent.

There is no doubt, as I indicated in my testimony, that the fact that watchmaking skills are available only in three domestic companies serves as a difficult obstacle to anyone who desires to enter the domestic watch manufacturing field. Even more basic, however, is a factor to which I was able to allude only briefly in my oral testimony because of the limitations of time. This is the basic policy of the three domestic watch manufacturers to produce all parts of their watches in their own plants, and to avoid the use of and prevent the development of subcontractors in the watch industry.

The American watch manufacturers have always boasted that they produce an entire watch in their own plants. This fact was confirmed at the hearings in the testimony of Mr. Bulova and President Sinkler of the Hamilton Watch Co. I believe it highly significant that virtually no other American industry attempts to manufacture its entire product.

More than half of the dollar value of an automobile, for example, is not produced by the automobile manufacturer, but is purchased from subcontractors. Similarly the aircraft industry and practically every other American industry tries to maintain a complete line of subcontractors. This has the advantage of introducing a continuing area of competition in all aspects of their operations.

Auto parts contractors know that they must continually shave costs and must continually develop better products if they are to maintain the business of the auto companies. The auto companies, in turn, will drop certain items from their own production line, if better or cheaper products can be procured on the outside. The net result is a steady stream of new ideas and new processes which are working to improve products and lower costs.

Nothing like this is found in the watch industry. If a manufacturer wants to enter the jeweled-watch manufacturing business in this country, he must construct a plant capable of producing every single part since he can purchase virtually none from established subcontractors.

In my opinion, this is the paramount reason why the domestic watch manufacturers have always discouraged subcontracting; it is their most effective possible means of assuring that they will not have additional competition in the domestic field. I know that insofar as my own company is concerned, a principal deterrent to our entering watch production in this country has been the fact that the domestic manufacturers have effectively prevented the development of supplier industries which could make such production practicable. This policy of the American watch manufacturers (quite aside from having resulted in a narrow approach to watchmaking which has necessarily discouraged innovation) has made it virtually impossible for newcomers to enter the jeweled-watch business in the United States.

I would appreciate this letter being inserted in the record of the hearings. I again wish to express my thanks for the opportunity to testify before your distinguished committee and for the courtesy extended me.

Respectfully yours,

S. RALPH LAZRUS,
President, Benrus Watch Co.

AMERICAN WATCH ASSOCIATION, INC.,
Washington, D. C., June 11, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,
House of Representatives, Washington, D. C.*

MY DEAR MR. CHAIRMAN: During the course of his testimony before the Subcommittee on Foreign Economic Policy, Dr. Arthur Flemming expressed some rather interesting points of view and assumptions with respect to what the situation might be if war should come.

I should like to offer some comments upon these matters, not so much in my capacity as president of the American Watch Association, but rather by virtue of my experience of 3½ years in the War Production Board. The first 2½ years of my service with the WPB consisted of being responsible for the largest single materials expansion program of the entire war, i. e., the aluminum and magnesium expansion program. The last year of the war, I was the Program Vice Chairman and Chairman of the Requirements Committee, the next-to-highest point of appeal on all decisions of allocations of scarce materials and facilities. To complete the record, may I record the fact that after Korea, I was appointed Deputy Administrator for Aluminum in the Defense Production Administration and thus had another active role in the building of the mobilization base and stockpile.

Dr. Flemming's testimony, both his direct testimony and in answer to questions, made it clear that he believes the national interest requires a strong, well-rounded mobilization base designed to serve the Nation under two possible war-time contingencies.

The first contingency is the possibility of a war—perhaps a very large conflict—which, however, would not involve a damaging attack of any variety on the continental United States. This first assumption is almost equivalent to saying that we would repeat World War II but with more modern weapons (except thermonuclear or atomic bombs) but perhaps including atomic artillery on battlefields.

The second contingency which Dr. Flemming was concerned about, insofar as use of the mobilization base is concerned, was what he called phase 2 of an all-out thermonuclear war in the early stages of which (phase 1) the United States would suffer severe physical damage in spite of retaliatory bombing of an enemy by us. He suggested quite strongly that the mobilization base currently being built up should ease the staggering task of surviving massive attacks and of starting up the long road of rehabilitating the physical facilities of the country. He strongly inferred that this phase 2, as he called it, would embody a massive shift to the production of high priority military end items needed for a supposed continuation of the conflict.

By inference at least, Dr. Flemming did not disagree with the point made by a number of prior witnesses to the effect that a massive thermonuclear attack upon the continental United States would come so fast and do so much damage in such a short time that very little opportunity would be available during that short period to convert any industry to manufacturing war goods for future use.

There are two points that I would like to make on this whole subject for whatever value they may have in your thinking about the nature and usefulness of a mobilization base which absorbs a considerable amount of the Nation's resources. Needless to say, the subject of these hearings—the preservation of skills of any kind as a part of the mobilization base—has a distinct bearing on the more generalized concepts of the base itself.

My first point.—It is implicit in Dr. Flemming's first assumption that (1) no attack on the United States will be made in the early stages of a serious global war, and (2) that we will have, as we did after December 7, 1941, an appreciable amount of time to activate the mobilization base and to convert industries, as we did in World War II, from civilian production to defense production. It is perfectly obvious that we are far better prepared to accomplish

this task today than we were on December 7, 1941, or indeed in June 1950. In other words, as Dr. Macdonald also pointed out, we do have a mobilization base in being today, and a very impressive one too. I would submit, therefore, that on this assumption the flexibility and dynamic nature of our productive capacities, to which a number of witnesses paid tribute, coupled with the time which Dr. Flemming's first assumption postulates, would clearly give us a successful buildup to the limits of our resources possible in fighting that kind of a war. Thus, I think we might feel fairly comfortable that Dr. Flemming's first assumption is now in general quite well taken care of insofar as our eventual power to win that kind of war is concerned.

My second point.—I find it exceedingly difficult to accept the idea that if a thermonuclear war starts with massive mutual bombing attacks, that this so-called phase 1 of such a war will come to some kind of an end and that the remnants of both sides will then enter a nonthermonuclear phase 2 where the remaining resources and population of the country can be devoted to survival and rehabilitation of the economy implicitly free from further hydrogen or atomic bombing attacks. I can of course visualize phase 1 coming to an end—as Senator Flanders has suggested—by such a severe destruction of morale and will to continue to fight on one or both sides, that peace negotiations would be immediately commenced. But it does not seem to me sensible to believe that atomic or hydrogen bombing will stop unless and until both sides have so used up their bombs and delivery systems in being and are unable to produce even a trickle of replacements. Maybe this is what will happen. But it seems to me unrealistic to presume that, if this does in fact happen and bombing stops for this reason, it is very unlikely that the resources of either side (to the extent that they exceed the amounts needed to keep the remaining population functioning even on a suprausterity basis) will be devoted to the kind of production for which the preconceived mobilization base is specifically designed. The most valuable part of any mobilization base under these circumstances might easily be well distributed depots of food, medicines, water purifying agents, and the like.

I am not necessarily contending that this line of reasoning, if sound, should cause us to abandon efforts to strengthen the mobilization base, but it does seem to me that it underscores the importance of the element of flexibility in our economy and the practical impossibility of visualizing what we would in fact be called upon to do if Dr. Flemming's so-called phase 2 should ever materialize. My own guess is that there will never be a phase 2 which bears any remote resemblance to any past experience of the human race in wars.

Sincerely yours,

SAMUEL W. ANDERSON, *President.*

AMERICAN WATCH ASSOCIATION, INC.,
Washington, D. C., June 11, 1956.

HON. RICHARD BOLLING,

Chairman, Subcommittee on Foreign Economic Policy, Joint Committee on the Economic Report, Washington, D. C.

MY DEAR MR. CHAIRMAN: I thought it might be helpful for me to file this supplementary statement for the committee records, which will draw a few general conclusions from the array of testimony which you have received during the 4 days of hearings.

It was most noteworthy, it seems to me, that virtually every witness emphasized the importance of maintaining an expanded flow of goods among the free nations, and there was general agreement that the use of trade restrictions on grounds of national security, if used at all, must be restricted to isolated, extreme situations.

On this point, ODM Director Flemming stated:

"I believe that the policy which is being followed by our Government of doing everything possible to reduce the barriers to trade between nations is a policy which contributes to the strengthening of our total national-security position. I believe that if any exception is made to this policy in the name of national security it should be done only after careful consideration of all the facts surrounding a particular case and only after the relationship to national security has been clearly established."

In reply to questioning, Dr. Flemming emphasized that any such exceptions, which raise trade barriers, must be "well documented and well thought through."

Similar warnings that higher tariffs, resulting from claims of defense essentiality, may actually impair national security, were voiced by: The State Department in its written replies to the subcommittee questionnaire; Mr. Struve Hensel, former Assistant Secretary of Defense; Mr. William Batt, Vice Chairman of the War Production Board in World War II, and many other witnesses including, of course, spokesmen for the American Watch Association.

Even Mr. Arde Bulova conceded the validity of this position. He said:

"I agree with those who fear that the claim of defense essentiality might become a refuge—an umbrella for protectionism. In fact, I believe that a highly selective approach is necessary to avoid broad-scale misuse of this principle of defense essentiality to the detriment of our overall economic health and security."

It seems to me, therefore, that one of the pertinent factors which might be considered by your subcommittee was whether, in its 1954 report on the jeweled-watch industry, the Office of Defense Mobilization actually used the careful consideration and extreme caution which all witnesses advocated.

Apropos of this matter, I believe that most significant testimony was given by Mr. Albert L. Reeves, Jr., representing the nonjeweled watch and clock industry, to the effect that there can be no distinction between the degree of essentiality of the jeweled-watch manufacturers and other branches of the horological industry. Mr. Reeves stated (p. 321 of the transcript) that these 10 factories possess a degree of essentiality "which is not exceeded by any other branch of the horological industry." Mr. Reeves said: "There is no difference between the miniature sizes, or miniature operations, that are performed in any of these industries."

Agreeing with this position, Mr. Arthur B. Sinkler, president of the Hamilton Watch Co., and president of the American Watch Manufacturers Association, made the following reply: "May I add that the jewel-watch industry concurs with what Mr. Reeves has just said, that nothing we might have said infers that the jewel-watch industry is essential to the exclusion of the nonjewel part. Secretary of Defense Wilson made that very clear in his letter where he said that the industry, as a whole, is essential. * * * Nothing that we have said should infer that we do not think that Mr. Reeves' industry is equally essential."

Thus, if one concedes that this point has been fully established, it seems clear that from the standpoint of national defense there is no justification for isolating the jeweled watch manufacturers from the other branches of the industry. Yet, that is precisely what was done in 1954 when the ODM report considered only 4 companies, rather than the entire 14 companies which compose the domestic watch manufacturing industry—not to mention those watch importer-assembler companies which, the record shows, have been and are now capable of manufacturing the identical types of defense production as the 4 jeweled-watch manufacturers.

It is important to recognize that if the entire watch-manufacturing industry were studied, instead of the 3 or 4 jeweled watch manufacturers, the Government would get a considerably different picture of the relative strength of the domestic watch-manufacturing industry and the importer-assembler segment. For example:

(1) The share of the total watch market enjoyed by the 14 domestic watch manufacturers is far greater than the share controlled by the two hundred-odd importer-assembler companies. In 1955 domestic watch and clock production totaled 18.7 million units, while imported watches and clocks totaled only 12.9 million. Thus, last year the domestic watch and clock manufacturers enjoyed over 59 percent of the total market. This is in sharp contrast with the 20-percent figure to which certain Government officials referred in connection with their study of the jeweled-watch segment of the industry. (Of course, as we explained in our basic testimony, this 20-percent figure is a distortion of the share of the market in which the domestic jeweled-watch manufacturers are truly competitive. It is interesting to note, in this connection, that the jeweled-watch manufacturers at no time denied our contentions that they are not offering products which compete with special-feature watches, such as those displayed by Mr. Cartoun. They made no effort to refute the obvious fact that one-third of all jeweled-watch imports consist of special-feature products which are not available from the domestic factories. Nor did they deny the fact that a very large proportion of imported movements, which are classified as jeweled movements, actually compete with pin-lever products in this country rather than the watches produced by Elgin, Hamilton, or Bulova. In fact, Mr. Reeves confirmed our position, stating that perhaps half of all jeweled-watch imports are competitive

with the pin-lever, rather than the jeweled-lever, industry in this country. Surely, this is clear proof of the enormous distortion which is inherent in the 20-percent share of the market figure which has been used repeatedly by the domestic jeweled-watch manufacturers, and has, apparently, been blindly accepted by many Government officials.)

(2) Total United States watch and clock production (jeweled and nonjeweled) is not declining. In 1955 total unit production was 18.7 million; in 1952 it was 16.1 million; in 1949 it was 18.6 million. The average for the 7 years since 1949 is 17.9 million.

In addition to these products, as Mr. Reeves explained, these companies also produce a great number of timing devices and special-purpose clocks as well as a very large volume of electric clocks on which there is no import competition. Surely, this is not a picture of an industry which is suffering a loss of markets or which is being threatened with extinction. (Note: The figures used on pin-lever watch and clock production were obtained from the testimony and charts presented by Mr. Reeves on June 6, 1956, while the figures on jeweled-watch production were obtained from the 1954 report of the Tariff Commission.)

(3) The 1954 ODM report stated that the mobilization base required 4,000 watch-production workers. While we disagree with this basic recommendation, it should be noted that the total number of watchmaking employees in the United States is, at the present time, far in excess of this figure. Surely, the employees of the 10 pin-lever plants are just as available for defense purposes as those at the 4 jeweled-watch factories.

(4) The 50-percent tariff increase has injured, rather than helped, the horological industry as a whole. Mr. Reeves testified that the watch and clock industry had been directly injured by the 50-percent increase in tariffs imposed by the President (though we believe he exaggerated its adverse effect on the pin-lever manufacturers). It is also apparent that the importer-assembler segment of the watch industry was severely injured by this action. Surely, it does not make sense for the Government to take an action aimed at benefiting one segment of the domestic watch industry which simultaneously injures other segments of this same industry—particularly if one grants that no distinction can be made between these segments in evaluating their possible contributions to the defense efforts.

Along these same lines, it might be noted that the 50-percent watch tariff increase also had an adverse effect on other industries. For example, in an effort to compensate the Swiss partially for the watch tariff boost, the United States agreed to reduce duties on 10 other items, including photographic equipment, certain chemicals, instruments, and textiles. Surely, the United States photographic and chemical industries are as essential to national defense as the jeweled-watch industry; yet, the Government has lowered their tariff protection to compensate the Swiss for the increase in watch tariffs.

It is apparent that the 1954 ODM report on the jeweled-watch industry did not reflect the clear, logical reasoning and careful documentation that Dr. Fleming says is necessary before resorting to trade barriers. As a matter of fact, the background studies which were submitted to the Office of Defense Mobilization by various executive departments were so conflicting and reflected such a confused approach to the problem that they were suppressed for nearly a year following the President's decision to raise tariffs. In our oral testimony, we submitted copies of the studies which were prepared in 1954 by the Defense Department and the Commerce Department. At this time, we should like to submit for the record a booklet entitled, "Let's Take Another Look," which underscores the inconsistencies among the various departments which studied the jeweled-watch industry in 1954.

It seems to me that there are several lessons which can and should be learned from the 1954 watch experience. First, as the testimony before your subcommittee so eloquently emphasized, the watch case provides a vivid example of the fact that direct forms of assistance to preserve truly critical skills would avoid many of the pitfalls—frequently unforeseeable pitfalls—which inevitably accompany the imposition of trade barriers.

In the case of the jeweled-watch industry, the Government apparently gave little consideration to alternative forms of assistance. Within a few weeks after the Office of Defense Mobilization issued its report supporting the defense essentiality claim of the 4 domestic jeweled-watch manufacturers, the President invoked a 50-percent increase in tariffs. No effort was apparently made to try alternative approaches to this problem—approaches, such as we mentioned in our testimony, which would have been aimed at curing the basic deficiencies in the

operations of the jeweled-watch manufacturers, rather than merely trying to curtail their competitors. Surely, direct forms of assistance would have been more manageable, less expensive, and far more productive in terms of assuring the long-range future of the jeweled-watch manufacturers, as well as improving their ability to fulfill their role in the defense effort.

The 1954 experience of the watch industry also illustrates the distortions that arise whenever the question of defense essentiality is viewed from the narrow standpoint of one industry or one segment of an industry rather than from a broad national viewpoint. Unfortunately, there is an indication that the ODM is following a similar procedure in its current investigation; that is, the executive branch appears again to be making a sharp cleavage between the jeweled-watch manufacturers and the rest of the horological industry despite the fact that no such distinction appears to be justified on grounds of national security.

This would be a most serious error. The problem facing ODM is whether the Nation's ability to produce certain types of defense products is being jeopardized by watch imports. To answer this question, it is obviously necessary to determine how many companies in various industries are capable of producing this same type of defense equipment.

It is the contention of the American Watch Association that many firms outside the jeweled-watch industry or outside of the pin-lever watch industry, are capable of producing the same kinds of defense items. Mr. William Batt testified along similar lines, as did other objective witnesses.

Calling on his experience in the ball-bearing industry, Mr. Batt pointed out (pp. 388-389 of the transcript) that "tolerances in the ball-bearing industry are from a half to a tenth as fine, or finer, than those in the watch industry." He explained that the job of manufacturing to close tolerance does not require skilled labor on the production line; the skill, Mr. Batt said, "is the equipment with which it is produced. Of course, it does take a degree of machine design and tool-making that is of the kind you use in the watch industry. However, we are only one of hundreds or thousands of concerns that have that type of skill."

If the time at your disposal at these hearings had permitted you to call witnesses from the business machine industry, the optical industry, the instrument manufacturers, the scientific apparatus industry, to mention only a few, I am certain that they would have established the fact that, on the basis of any criteria so far advanced in support of the defense essentiality of the jeweled-watch industry, they too would be entitled to claim equal status. I say this with confidence because I have heard some of them, in effect, do just that in a recent meeting chaired by Dr. Flemming.

Despite the fact that numerous firms, both within and outside the horological industry, are capable of producing the same types of defense products as the jeweled-watch manufacturers, there are indications that the executive branch may once again attempt to isolate 3 or 4 jeweled-watch companies as though they were separate and apart from the rest of the economy. The case-by-case procedure which Dr. Flemming indicates would be used by ODM in studying appeals of the national security provisions of the Trade Agreements Act is basically similar to the procedure used by the Tariff Commission in its various investigations and to the method used by ODM in the 1954 essentiality study of the jeweled-watch manufacturers.

Inevitably in the past, such a procedure has led to limited, narrow studies of the effect of imports on individual industries or segments of industries. By contrast, Congress intended that appeals under the national security provisions of the Trade Agreements Act would be considered from a far broader point of view. If defense essentiality claims are not to become a method for undermining our foreign economic policy, ODM will have to use far broader criteria than have been used heretofore in judging the merits of individual appeals.

It should be remembered that a narrow, case-by-case procedure for considering defense essentiality appeals is precisely the approach which was most criticized in testimony by many witnesses before your subcommittee. Dr. David, Mr. Hensel, Dr. Macdonald, and Mr. Batt all urged an approach to the skills problem which would lead toward greatest flexibility, in keeping with rapidly changing defense requirements and rapidly evolving technology. Each of these eminent witnesses argued against viewing the problem of skills from a compartmentalized, industry-by-industry standpoint.

It is highly significant and most encouraging, that the reply of the Labor Department to the subcommittee questionnaire underscored this point, as follows:

"Main emphasis is placed upon maintaining a currently adequate supply of the more highly developed and critical skills which, fortunately, are often readily transferable to various types of mobilization activity. For instance, the critical skills of the engineer, the machinist, the tool and die designer and the many other of the most critical skills are found in a wide range of manufacturing industries and are transferable between industries to meet changing requirement."

Surely, such a realistic appraisal by the Labor Department is a far cry from the Commerce Department's 1954 report which recommended that a minimum of 3 million jeweled watches must be produced annually because jeweled watches (with sweep second hands) would be needed by nurses and miners during full mobilization.

There were other, equally significant developments in the course of the testimony which underscore the lack of consistent and logical criteria and thinking that went into the 1954 ODA report. For example, several of the domestic manufacturers emphasized the point that they could make more money if they turned their facilities away from watch production and into other fields. They pointed to what they claim are their unique qualifications to produce civilian and military nonwatch products requiring high degrees of miniaturization and close tolerances. Presumably, it is these types of civilian and defense products which the jeweled-watch manufacturers would be manufacturing if they decided to eliminate their watchmaking operations.

According to their testimony, the manufacture of these alternative products requires exactly the same degree of precision as is used in their present watchmaking operations. Surely, if this is not the case, then their entire argument concerning the essentiality of the watch industry falls apart. And if it is true, then it is hard to see why the availability of these firms for defense purposes would, in any way, be injured if they stopped producing watches and began producing other civilian and military items requiring the identical personnel and skills.

We do not want to imply that we favor the elimination of the domestic jeweled-watch industry. As we emphasized in our testimony, we do not believe there is any evidence that the watchmaking operations of these firms is in any real jeopardy, in view of their high profits and the level of their watch production. Nonetheless, it should be borne in mind that the threat of the domestic jeweled-watch manufacturers that they may cease watch production and go into other types of products is an idle threat so far as their potential for producing defense items is concerned. This point was largely confirmed by Mr. McMorro, of Waltham Watch Co., which is moving in this direction.

Along this same line, it should be remembered that the domestic jeweled-watch manufacturers have defense contracts running into tens of millions of dollars. According to ODM Director Flemming, our current defense production program provides one of the major contributing factors toward maintaining a strong mobilization base. So far as the watch industry is concerned, Dr. Flemming's comment is obviously pertinent since these firms have at least as many employees working on defense items as in their watchmaking operations.

All of these considerations underscore the need for clear-cut criteria in determining whether the national security is being impaired. While there was widespread agreement among witnesses that such criteria should be established, the replies from the executive departments indicated that little effort has been made in this direction. This means that future appeals for tariff protection may be studied from the same divergent viewpoints as were reflected in the 1954 reports by the Defense and Commerce Departments on the watch situation.

If the United States is to avoid undermining its foreign economic policy, the executive branch must not fall into the same trap in which it was enmeshed in 1954. It should not look at defense essentiality appeals on the basis of 1 domestic industry—or even worse, 1 segment of a domestic industry. Rather, in order to protect our total national security, the executive branch must view the question of essentiality from a far broader standpoint which will reflect our total national policy.

May I take this opportunity to express the hope that your subcommittee will continue to encourage the executive branch to distinguish between true protection of the national security and protection of those industries who seek relief from foreign competition under the guise of defense essentiality.

Very truly yours,

SAMUEL W. ANDERSON, *President.*

AMERICAN WATCH ASSOCIATION, INC.,
Washington, D. C., June 11, 1956.

HON. RICHARD BOLLING,
Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: AS you know, representatives of the domestic watch manufacturers testified before your subcommittee subsequent to the appearance of the watch importer-assemblers and, as a result, there was no opportunity during oral testimony to rebut their arguments. We therefore hope you will allow us to file this supplementary material for the subcommittee record.

I might say, at the outset, that we are not attempting to refute each of their statements with which we disagree, and I hope that your subcommittee will understand that our failure to rebut their 133 pages of testimony, point by point, does not in any way imply that we concur with all of the positions on which we are not commenting.

As a matter of fact, it is interesting to note that some of their testimony was internally contradictory, so that it does not require an answer on our part. Other points were directly rebutted by impartial witnesses having no connection with the watch controversy. In this connection, we should like to point to the following facts:

1. General Omar Bradley of the Bulova Co., Mr. LeRoy A. Mote of Elgin, Mr. Walter Cenerazzo and others repeatedly referred to the unique ability of the jeweled watch manufacturers to produce defense equipment. Nevertheless, only a few minutes later, Mr. Sinkler conceded that the nonjeweled segment of the watch industry could produce exactly the same type of defense items as the jeweled watch companies. And, of course, the Defense Department in its 1954 study of the watch industry, and Mr. William Batt in his testimony, made it clear that scores of companies outside the watch industry can also produce these same types of defense products.

2. General Bradley (p. 227) and Mr. Mote (p. 251) referred to the production of jewel bearings as an illustration of the type of product which only the watch companies could produce for defense purposes. Yet the committee heard from Mr. Kalquist of the Moser Jewel Co. that his firm has been manufacturing jewel bearings in quantity since 1922, and that sizable expansion in the production of jewels by his and other plants, not connected with the jeweled watch industry, could be arranged without undue difficulty or delay.

3. There was apparent disagreement among the domestic manufacturers as to what element they possess which gives them their alleged essentiality. Some witnesses said it was their ability to produce jeweled watches; some said it was their ability to make fuzes; some said it was their ability to produce electronic equipment. This is perhaps the most eloquent possible testimony to support the position of Mr. Batt, Dr. David, Dr. Macdonald, and other witnesses who claimed that the true strength of American industry lies in its flexibility and its diversity. The domestic watch manufacturers obviously have this ability; they can produce watches and also many other items. The same thing can be said of virtually every other industry. As Mr. Batt said, "The strength of American industry is in its diversity and, therefore, I regard any steps which set aside special segments, put a fence around them, tend to freeze them, as a definite weakening of our national security, rather than strengthening" (p. 391).

4. Along these same lines, Mr. Cenerazzo said (p. 328) that it was important for the national defense to continue jeweled watch production because a watch assembly worker will lose his skill if he is transferred to another department. By contrast, Mr. Mote acknowledged (p. 253) that the vital elements in precision production are "the critical machines, the tool-building facilities, the inspection equipment, and most of all it resides in the skills of the engineers, the machine and code builders, the supervisors, and the technical people who know how to use them properly and to train others in the art of precision." Thus, Mr. Mote is acknowledging the position which we took and which many impartial witnesses took that it is not necessary, in this period of revolutionary technical advances, to maintain day-to-day routine skills of production workers.

5. Mr. Mote displayed a series of nonwatch products of the latest designs, which he said had been developed by the jeweled-watch industry. It was interesting to note, however, that not one witness for the domestic manufacturers attempted to refute the fact that the watch products of the domestic jeweled-watch manufacturers are years behind their Swiss counterpart. This is a perfect reflection of the validity of our charge that the engineering, financial, and managerial

efforts of these companies have gone into their diversified electronics, instruments, and defense operations within recent years and that they have neglected their watch business.

6. General Bradley's statement (p. 233) that watch importer-assemblers have not contributed to United States industrial preparedness is directly contrary to the facts. Gruen, Benrus, Longines, and other importer-assembly firms have made defense contributions which are comparable to the records of the domestic watch manufacturers.

7. Mr. Cenerazzo said (p. 318) that "when the United States raised its tariff, the Swiss cartel reduced its barrage prices to offset the difference, so that, in effect, the full effect of the tariff increase was absorbed, some of it was absorbed, by lower prices." This is a complete misstatement of fact. Prices of the imported watch movements have not been reduced since the 50-percent tariff increase in 1954. It is true that, as a result of the tariff increase, the cheaper low-jeweled Swiss watches have increased in popularity in the United States. Mr. Reeves presented some charts to this effect. The inescapable conclusion is that the American consumer has had to be satisfied with a product of lesser quality per dollar of expenditure.

8. Mr. Bulova (p. 215) and General Bradley (p. 232) insisted that the watch importers now have 80 percent of the watch market and are driving for 100 percent of the business. Nothing could be further from the truth. As we testified, and as Mr. Reeves acknowledged, the larger share of the market belongs to the domestic manufacturers. Watch importer-assemblers have no desire to drive them out of business and believe there is plenty of room in the expanding watch market for all segments of the industry—provided the domestic jeweled watch manufacturers begin to eliminate their technological lag relative to the Swiss industry.

9. Descriptions of the upjeweling situation by General Bradley (p. 231) and Mr. Bulova (p. 326) are not borne out by the facts. However, in light of the separate memorandum which we have submitted on this situation, we will not attempt here to correct the distorted impression which was left by this testimony.

10. Mr. Cenerazzo's statement would indicate that he voices the position of workers in the United States watch industry. The fact is that far more domestic watch employees belong to other unions, or are unorganized, than belong to Mr. Cenerazzo's union. Among the unions which have organized a substantial group of employees in the watch industry is the UAW-CIO, and it is significant that the CIO has consistently taken a strong stand against the watch tariff increase. It presented a paper to the Tariff Commission recommending rejection of the bid for higher duties, urged the President to turn down the application, and has continually criticized the 50-percent boost since its announcement. We are attaching the statement presented by the CIO before the Committee on Reciprocity Information on March 28, 1955, and respectfully request that this document, which typifies the CIO position, be included in the subcommittee record.

Aside from these points, Mr. Chairman, there is one general matter which we feel is of substantial importance. Your committee has received a very extensive memorandum prepared by Prof. Joseph Solterer, of Georgetown University. Approximately 20 pages of Dr. Solterer's document are devoted to a lengthy analysis of the Swiss watch trust. The general purpose of his presentation was apparently to demonstrate that the Swiss watch industry is organized primarily for the purpose of suppressing foreign competition.

In this regard, it is most interesting to note that despite the length of Dr. Solterer's study and the presumed completeness of his examination, he apparently is either unfamiliar with or chooses to ignore certain fundamental matters. For example, Dr. Solterer makes no mention whatsoever of one of the most important and pertinent facts; namely, that the trade agreement between the United States and Switzerland, signed in 1936 and still in effect, shows that our Government clearly recognized and endorsed the rigid supervision by the Swiss of exports to the United States.

This is apparent from the declaration annexed to the trade agreement which, as explicitly provided in article IV of the agreement, is to have the force and effect of an integral part of the agreement. The declaration (a photocopy of which is attached) provides that the Swiss watch industry is to be closely regulated under a system established and maintained by the Swiss Government. Although our Government's principal interest in the Swiss regulation is to suppress smuggling of watch movements, it is obvious that our Government contemplated extensive and close supervision of the Swiss industry. An

indication of the broad scope of the regulation envisaged and agreed upon by the two Governments can be seen from such provisions as paragraph 4 of the declaration.

In its contemporaneous analysis of the trade agreement our State Department pointed out that—

"Switzerland undertakes, as an exceptional measure, to establish a rigorous export control system which should go a long way towards preventing Swiss watch movements from entering into the illicit trade. * * * The cooperation offered by the Swiss Government in helping to eradicate the watch smuggling evil will be of very great value in safeguarding the public revenue as well as protecting the American watch industry against illegitimate competition."

It should be noted that when the trade agreement was modified in 1950 to add an escape-clause provision, and again when the agreement was supplemented in 1955, there was no question raised as to the desirability and continued effectiveness of this agreed-upon system of regulation of Swiss exports to this country.

May I, on behalf of the members of the American Watch Association, take this opportunity to thank you most sincerely for permitting us to present this information.

Sincerely yours,

SAMUEL W. ANDERSON, *President.*

STATEMENT OF THE PROPOSED SWISS NEGOTIATIONS, ON BEHALF OF THE CONGRESS OF INDUSTRIAL ORGANIZATIONS, BY STANLEY H. RUTTENBERG, DIRECTOR, DEPARTMENT OF EDUCATION AND RESEARCH, CIO

I appear here today on behalf of the Congress of Industrial Organizations to present a general statement on the proposed tariff negotiations with Switzerland. Although your hearings are concerned with determining the specific items to be included on the list for the negotiations and the appropriate amount of tariff reduction, we know that you are also concerned with the broader problem of the effect on international trade. Since the CIO has always been a strong advocate for improving trade relations among the countries of the world, we feel that we must appear here today to urge reconsideration of the withdrawal of the Swiss watch concession which brought about the need for your deliberations.

We have chosen this opportunity to present our views because our remarks would not have been pertinent to the peril-point hearings of the United States Tariff Commission where the level of tariff in specific industries is the exclusive consideration. In our appearance today, we do not support or oppose any tariff cuts for the specific items on the proposed list. We certainly are not here in the role of protectionists, however. Instead we should like to suggest that it would be the better part of valor for the United States to rescind its action of last July 27.

On that date, the President of the United States decided to raise the duty on Swiss watches in the interest of national defense. Switzerland, therefore, under the terms of her trade agreement with the United States, had the right, which she is now exercising, to ask for compensatory tariff reductions on other items. Thus, because the watch industry has been "protected" by the President's decision of last July 27, other industries must now make up for this error in judgment. The United States, therefore, is placed in a position where it must rob Peter to pay Paul. Instead of considering reduction of duties on the merits of each situation, we are forced to consider them because of an error raising the duty on Swiss watches 9 months ago.

I have used the word "error" because recent information shows that the President's major justification for approving the increase in duty—namely, to preserve the skills in the United States watch industry for national defense requirements—did not have the support of the Department of Defense.

In fact, a Defense Department report on April 29, 1954 (released only a few days ago) concluded that "no special or preferential treatment for the industry is necessary." In transmitting the report to the Director of the Office of Defense Mobilization, Assistant Secretary of Defense C. S. Thomas stated: "The report has had the benefit of the most thorough examination by technical experts of the three military departments. The conclusions have been reached after careful consideration by cognizant officials of the Department."

Nevertheless, the press release accompanying the President's proclamation on raising the Swiss watch duty on July 27 stated: "The President's actions will have an important collateral effect in contributing to the maintenance of a satisfactory industrial mobilization base for the domestic production of watch movements and other precision devices necessary for national defense."

The President based his decision on recommendations from the United States Tariff Commission and the Office of Defense Mobilization, both of whose reports were released simultaneously with the proclamation.

The Defense Department report, however, differed from these 2 and was suppressed until March 22, 1955—11 months after its completion.

To explain the obvious conflict between the ODM and the Defense Department reports, a distinction has been made between "national defense" and "national security." The latter apparently involves essential civilian as well as military needs, while the former is restricted to military requirements.

Surely if the Swiss watch decision was based on essential civilian needs, the present list should be considered on the same grounds. If civilian essentiality is the test, the United States would be forced to protect a great many industries on the proposed list.

Of course, there is no clear evidence that the watch industry's status has improved as a result of last year's decision. There is proof, however, that the Swiss watch decision strained our relations with that friendly country and others. There is proof that the United States has placed itself into a box where it must find inequitable solutions to the problems created. There is evidence that the watch industry could have been helped in another way.

We therefore feel that enough doubt is cast on the basis of the July 27 proclamation to warrant reconsideration of the decision to raise the duty on Swiss watches. This seems to be a more reasonable course than to force other industries, wrongly or rightly, to accept tariff cuts compensating for the withdrawal of the 1936 concession on Swiss watches. The compensating tariff cuts set dangerous patterns. They are even more dangerous when the original decision causing them has to be justified, in the main, by fine distinctions which could apply to almost any industry in the United States.

In the original instance, the CIO opposed granting relief to the watch industry. One year ago, on March 29, 1954, the CIO presented a statement to the United States Tariff Commission in opposition to the watch industry's escape-clause application. In our statement to the Commission, we developed a series of arguments which justified our conclusion in urging the Tariff Commission to reject the application. Again on June 30, 1954, CIO President Walter P. Reuther wrote a letter urging President Eisenhower to reject the Tariff Commission's recommendations. For purposes of the record, I should like to refer to the 6 points made in Mr. Reuther's letter.

1. "Imports of Swiss watches create a substantial amount of subsidiary employment in the United States. Roughly two-thirds of the watches imported from Switzerland come into this country in the form of watch movements, rather than assembled, completed watches. These watch movements must be assembled in American factories by American workers in American-made cases. In addition, a certain amount of processing, such as timing, regulating, and attaching bracelets and straps to the cases, is necessary before the watches can be sold as finished products in this country. These processes are domestic operations that supply jobs for American workers.

"2. Imports and exports are interdependent. More employment in the United States is dependent on continued American exports than would be adversely affected by increased imports. The watch industry is a very good example of this fact.

"3. The present economic recession or business downturn has temporarily affected both the United States production and the United States importation of watches. Reduced watch imports cause curtailed Swiss production and sales, which, in turn, mean that less United States wheat, lard, auto parts, machinery, et cetera will be exported to Switzerland. Increasing duties, as the United States Tariff Commission recommends, would further aggravate this problem.

"4. In recent years, the watch industry has been highly dependent upon defense orders for military timepieces, time fuses, et cetera. Although total employment in the watch industry today is greater than in any year since 1948, more than half of that employment is dependent upon defense orders. In 1949, less than 1 percent of the total employment was dependent on defense orders. The curtailment of these orders would reduce employment considerably. However, this situation cannot be remedied by imposing higher tariffs on Swiss watches.

What is needed is a reexamination of the defense essentiality of items produced by watch plants.

"5. In order to continue favorable trade relations with Switzerland, as well as other countries, these countries must show a steady improvement in the economic status of their workers. Wage comparisons between countries and the effect of wage rates upon unit costs of production plan an important part in trade relations. Any interference with the steady improvement of wages abroad will tend to make continued trade between the countries abroad and the United States extremely difficult. As long as the United States continues to import, the economic conditions of these countries will permit improvement in their workers' economic status through higher wages and improved conditions.

"(6) If, on the other hand, tariffs and duties are increased as, in this instance, the Tariff Commission recommends for watches, the sales and production by other nations of the world will be curtailed. The needed improvement in their wage levels will be made extremely difficult, if not almost impossible."

We think these arguments are as valid today as they were last year. We think a reconsideration of the Swiss watch decision of last July could overcome the difficulties caused by this step much better than a reduction of United States duties on a long list of items which Switzerland wishes to export.

In our statement to the United States Tariff Commission, as well as in President Reuther's letter to President Eisenhower, the CIO indicated that there were other ways to preserve the skills of domestic watch workers, if, indeed, national defense requires their maintenance. Increased military orders will assure preservation of these skills; absolutely no assurance is given that the increased duty will give the same result.

In closing, I should like to mention one other consideration: The Congress of Industrial Organizations is concerned with the maintenance of sound relations with fellow workers of the free countries of the world. The Swiss watch-workers of the Swiss Metalworkers Federation, as well as the International Metalworkers Federation of the International Confederation of Free Trade Unions, have appealed to us to support their position that Swiss watches should continue to enter the United States without the duty increase imposed on July 27, 1954.

We are interested in international cooperation with other free countries around the world. We think a vital blow was struck against our relations with our allies overseas when the decision to increase watch duties was issued. We think an even more vital blow will be struck against the whole concept of reciprocal trade if we grant concessions to Switzerland to compensate for the withdrawal of the Swiss watch concession.

Because of our dual concern for international labor and international trade relations, we urge you not to set a dangerous precedent in international trade at the expense of United States industries by forcing them to pay for an error last year. They have problems of their own and should not be forced to help the United States watch industry, which, if it needs help, can best obtain it by means other than by tariff protection.

DECLARATION

SUPPRESSION OF SMUGGLING OF WATCHES, ETC.

With a view to cooperating with the Government of the United States of America in its efforts to suppress the smuggling of watches and watch movements, the Government of Switzerland will establish and maintain with the collaboration of the appropriate organizations of the Swiss watch industry, the following system of regulation of the exportation of watches and watch movements from Switzerland to the United States:

1. Watches and watch movements other than those purchased at retail may not be exported from Switzerland to the United States except under export permits issued by a Swiss watch organization to be designated by the Government of Switzerland. Such permits shall be viséed by the Swiss customs authorities when the shipments are exported from Switzerland and shall be delivered to the appropriate American consulate in Switzerland. The export permit shall be substantially in the form attached hereto.

2. Watches and watch movements destined for the United States shall be exported through the Swiss customhouse at the place or places to be designated by the Swiss customs authorities, for direct shipment to the United States.

3. Watches and watch movements exported from Switzerland to the United States shall be permanently marked with a distinguishing mark distinct for each importer in the United States. Current lists of such marks, and the names and addresses of the persons to whom allocated, shall be furnished by the Swiss Government to the American Legation at Bern. However, such mark shall not be required in the case of watches or watch movements which are or may hereafter be permitted to be legally imported into the United States without marking.

4. The appropriate organizations of the Swiss watch industry will take such measures as are necessary to insure:

(a) that their members keep regular accounts, periodically audited, and that they furnish complete information to a central organization in Switzerland regarding their exports of watches and watch movements to the United States, in particular, the dates, quantities and values of their shipments, the style of their products, the names of the suppliers of the exported articles, and the names of the importers in the United States; and

(b) that infringements of this system of regulation of exports are punished in accordance with the conventions of the Swiss watch industry; it being understood that one of the penalties to be imposed shall be the temporary or permanent refusal of export permits for future shipments to the United States.

5. Upon request through the appropriate channels, the Swiss watch organization which is designated by the Government of Switzerland for the issuance of export permits will furnish information to the American customs authorities regarding the smuggling or suspected smuggling into the United States of watches and watch movements.

6. The Swiss watch organization which is designated by the Government of Switzerland for the issuance of export permits will, after due warning, refuse to issue export permits for the shipment of watches and watch movements for the account of any person in the United States if there is probable cause to believe that such person has smuggled or is engaged in the smuggling of watches or watch movements into the United States and if such person has refused to permit a duly accredited customs officer of the United States to inspect his stock or records pertaining to such merchandise or the purchase or importation thereof.

The system of regulation of exports described above shall be put into operation on May 1, 1936, and shall continue to operate as long as the trade agreement remains in force, subject to the provisions of article XVII of the said trade agreement.

FORM OF EXPORT PERMIT FOR WATCHES AND WATCH MOVEMENTS

Mr.-----
(Name of exporter)

residing at----- Switzerland, applies
for an export permit for a shipment to the United States as described below.

Consignee: Goods sent to-----
(Name and address)

Ultimate consignee-----
(Name and address)

Country of origin: Switzerland.

Nature and quantity of the goods (as described in the United States customs tariff)-----

Value of the goods sent-----
(In Swiss francs)

Goods exported from Switzerland through-----

For importation into the United States through port of-----

Marks and numbers on case or parcels-----

Signature of exporter-----
(Seal)

Date----- 19----

La Chaux-de-Fonds, ----- 19----
(SWITZERLAND)
THE SWISS WATCH CHAMBER OF COMMERCE

(Seal)

Visa of the Swiss customs authorities at

(Seal)

JUNE 11, 1956.

HON. RICHARD BOLLING,
*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,
Congress of the United States.*

DEAR MR. BOLLING: I am submitting this additional statement for inclusion in the record in accordance with the permission you granted during the hearings conducted by your subcommittee last week.

The temptation is great to use this occasion as a means for correcting some of the many overstatements and misstatements appearing in the testimony of certain of the other witnesses. However, for the most part such statements have been challenged or clearly refuted by other testimony. For this reason, and mindful of your request that additional statements be kept short, I will limit myself to two brief comments.

The first concerns jewel bearings and, in particular, the past and future role of the jeweled watch industry in the production of these critical items. The record as it now stands on this subject is limited almost entirely to Mr. Kalquist's testimony (tr. pp. 346-354) and some observations supplied by Mr. Lazrus (tr. pp. 205-206), and is both inadequate and misleading. Actually the jewel-bearing problem has long been recognized as a serious one and, as such, has been the subject of several Government studies. The War Production Board, for example, wrote a 196-page History of Jewel Bearings and Related Government Policies Under the War Production Board and Predecessor Agencies, an exhaustive analysis of our World War II experience in production and procurement of jewel bearings. The WPB history is summarized and postwar developments documented in a length memorandum entitled "The Jewel Bearing Problem: Résumé of the Key Importance of the Domestic Jeweled-Watch Industry to Essential United States Production of Jewel Bearings for Full Mobilization," which was submitted to and incorporated into the record of (tr. pp. 203-214) the hearings before Preparedness Subcommittee No. 6 of the Committee on Armed Services during their investigation in 1954 into the essentiality to the national defense of the domestic horological industry.

Last year the problem was completely resurveyed in a separate jewel bearings chapter in the Bureau of Mines' Bulletin 556, "Mineral Facts and Problems." Still more recently, an interagency committee, composed of representatives of each of the services and the Business and Defense Services Administration of the Department of Commerce, acting at the request of the Office of Defense Mobilization, has conducted a requirements and capacity survey on jewel bearings as one of ODM's critical component studies. This latter study has been scheduled for completion on or about June 30. In connection with its preparation a special conference on jewel-bearing producers and consumers (attended by Mr. Kalquist, among others) was held under Department of Commerce auspices on May 16, 1956. Minutes of this meeting, together with a reprint of the jewel bearings chapter from Bureau of Mines' Bulletin 556 are attached. Since both are short summary-type documents, I respectfully request that they be incorporated into the record of the subcommittee's hearings.

I cite these various studies because I firmly believe that the subcommittee will do a disservice to itself and to those who read the record of its proceedings if the sole evidence in the record on jewel bearings is that provided by Messrs. Lazrus and Kalquist. And I strongly urge that the subcommittee, if it contemplates any findings or conclusions on the importance of the jeweled watch companies to jewel-bearing production in this country, carefully consider these independent studies and consult with the Government officials who assisted in their

preparation and are cognizant of the facts. I urge this because, as I have indicated, in many respects the important facts either are omitted or misstated in the Lazrus-Kalquist allegations. For example:

1. *Allegation.*—The jeweled watch companies are not the leading manufacturers in the jewel-bearing field (Lazrus, p. 205), there being 7 or 8 other producers (Lazrus, p. 205, and Kalquist, pp. 347 and 353).

The facts.—During World War II, the great majority by far of jeweled bearings of both horological and instrument types were produced by Bulova, Elgin, and Hamilton. Their reject rate was much lower than other companies. They supplied all of the smaller and closer tolerance timepiece bearings made in this country. As the Bureau of Mines study relates, the major portion of commercial jewel manufacturing firms today are concerned principally with finishing and mounting imported jewel bearings. It is believed that Mr. Kalquist's company falls into this category and that its current domestic production of jewel bearings constitutes a minor and insignificant fraction of the United States production total. The only synthetic sapphire bearings manufactured domestically in any appreciable quantities are cup jewels. The above-cited studies make it clear that, by reason of its unique skills, the jewel watch companies are peculiarly equipped to expand domestic jewel-bearing production. Significantly, the only two developmental contracts placed by the military for jewel-bearing production have been placed with Bulova and Elgin.

2. *Allegation.*—The manufacture of jewel bearings is not an unusual technical skill (Lazrus, p. 205).

The facts.—(a) The Bureau of Mines bulletin describes jewel-bearing production as demanding "meticulous detail. * * * The work is done to close tolerances and requires skilled labor with high finger dexterity, muscular coordination, and patience" (p. 1). "The manufacture of jewel bearings involves scrupulous attention to detail" (p. 2). The bearings are cut to "extremely close tolerances, usually in the order of 0.0001 inch" (p. 3). "Nearly all of the labor [in Switzerland] is skilled, and three-fourths of the labor supply is women because they are better adapted to the painstaking skilled work. One to 3 years of apprentice training is required" (p. 6). (b) Minutes of Special Conference on Jewel Bearing Producers and Consumers, May 16, 1956 (p. 10): "The conferees indicated that about 12 people are now employed in the industry who are capable of comprehending the techniques developed at Rolla. Several of these people are elderly, and the bulk of them are middle aged. Unless their skills are passed on to others in the very near future, the art will be lost entirely to the United States." It is understood that over one-half of these people are employees of Bulova, Elgin, and Hamilton.

3. *Allegation.*—Any jewel-bearing manufacturer could produce either horological or instrument-type jewel bearings since both are machined in the same manner and require the same degree of precision (Kalquist, p. 346).

The facts.—This simply is not so. As the Bureau of Mines bulletin states, watch jewels are used on the parts that require the finest adjustments (p. 4). In fact, except for a small quantity of pallet stones, "essentially no watch jewels are made in the United States by private enterprise," although some hole-and-cap jewels suitable for use in watches have been produced by the Bulova-operated Turtle Mountain ordnance plant at Rolla (p. 5).

4. *Allegation.*—The prospects for glass and plastic bearings replacing jewel bearings look good (Kalquist, pp. 348, 349, 351).

The facts.—The Bureau of Mines bulletin notes (pp. 4 and 7) that substitution of glass for jewel bearings has been confined to "vee" jewels and then only where the "moving elements weigh less than 1 gram and in applications where they are not subjected to severe vibration and shock." See also the minutes of the meeting of May 16, referred to above: "* * * very few glass ring bearings are used, the breakage during assembly being the major drawback. Furthermore, Government specifications regarding shock and vibration are becoming so stringent as to preclude the use of glass ring jewels * * * glass does not appear to be a good substitute" (p. 5). "With respect to ring bearings, however, the industry, for practical purposes, has reverted to sapphire" (p. 6). "For ordinary commercial use, plastic bearings are generally inferior to sapphire" (p. 8).

5. *Allegation.*—This country does not face an immediate or a potential crisis in jewel production (Kalquist, p. 347).

The facts.—The minutes of the Department of Commerce meeting state (p. 3) that there is a "substantial gap between [jewel bearing] capacity and requirements." Furthermore (at p. 5), they relate that:

"Mr. Sperry (from the Office of the Chief of Ordnance) estimated that usage of the 60 million sapphire bearings (the estimate of minimum annual requirements) could be considered on the basis of two-thirds for horological applications and one-third for instruments. Present facilities, Government and industry, are estimated to have a mobilization capacity for producing only 6 to 7 percent of this quantity. He further told the committee that the 60-million figure takes cognizance of but does not include the glass bearings used for certain applications."

Second and finally, summaries of the defense work performed by Benrus Watch Co. and Gruen Watch Co. were inserted in the record on Tuesday by Mr. Lazrus (tr. p. 127) and by Mr. Anderson (tr. p. 111) respectively. In exhibits I and II to Mr. Mote's statement there are set forth a summary record of the World War II production of the domestic jeweled watch industry and a partial listing of unclassified defense work performed by that industry in the 1950-54 period. We have not seen either the Benrus or Gruen submissions, although we requested your staff for an opportunity to do so.

(STAFF NOTE.—The implications of this statement are not supported by the facts. The facts are these: At the close of the hearings on Tuesday when summaries of defense work were submitted by watch importers, in the midst of the attendant hubbub and confusion, a lawyer from the domestic manufacturers came up to the table where our staff were trying to collect their papers before return to their offices. Permission was asked to see these documents. The reply was, certainly, for they were now part of the public record. It was pointed out that these documents had never been examined by our staff, that the reporter had taken them to be bound into the original record which would be available for inspection by anyone at the joint committee office, and of course that later they would appear in print. No subsequent request or appearance was made to examine these documents.

We would like to point out, however, that a listing of end products—whether by importer companies or by the domestic watch producers—is not in itself completely meaningful as a criteria for adjusting respective defense capabilities. The subcommittee, if it intends to place weight on such listings, should make inquiry into such matters as (a) the comparative technical complexity and skill inputs for each end-item listed; (b) the lead time required in attaining full production; (c) the extent to which foreign or other domestic sources were relied upon for parts or components; and (d) the quality of the items produced—reject record, ability to meet Government standards, need for waivers, etc. Moreover, with respect to the items claimed to have been manufactured by Benrus, the committee should inquire as to how much of any work actually done by Benrus was performed at the plant at the Waterbury Clock Co., which Benrus bought just before World War II, and which it dismantled and sold after the war.

These are all matters which, as far as the domestic watch manufacturers are concerned, are presumably being studied by the Department of Defense as a part of the pending ODM investigation. In this connection, I should emphasize that the lists attached to Mr. Mote's statement are indeed "partial" lists. They do not include the very extensive subcontract work being done by the domestic manufacturers on defense items; nor do they include the many research and development contracts, many of which are classified, placed with these companies; nor do they include any work done or contracted for after June 1954. Hamilton alone has recently submitted to the Department of Defense, at its request, a 96-page, single-spaced, 11- by 17-inch table listing every defense contract, both prime and sub, placed with that company since June 1950. This document is itself classified. Furthermore, there are some contracts which could not even be included in this list, because of security requirements.

I suggest that any finding of the industry's essentiality to national defense would be entirely inappropriate until and unless an extensive and careful analysis of these contracts (and those set forth on similar lists submitted by the other domestic jeweled watch producers) has been undertaken. Obviously, in the time accorded us and because of security restrictions, we could only allude to a very minor fraction of this work at the hearings.

Yours very truly,

ARTHUR B. SINKLER,
President, Hamilton Watch Co.

(The enclosures referred to are retained in the files of the committee.)

EXHIBIT I

World War II production of the domestic jeweled watch movement industry¹.

[Quantity in units]

Number of jewels	Type	Total industry production	Military	Distribution industry	Lend-lease
	Marine chronometers	9,889	9,889		
22	Deck watches	8,435	8,092		343
21	Chronometer watches	22,946	22,187	330	429
22 to 23	Master navigation watches	139,894	129,558		10,336
21 to 23	Railroad watches	174,944	51,658	123,286	
15 to 19	Chronograph watches	211,027	210,892		135
17	Comparing watches	41,351	37,209	55	4,087
17	Pocket watches	128,238	128,238		
9	Pocket watches	117,813	54,420	500	62,893
7 to 9	Stop watches	272,645	197,368	14,409	60,868
17	do.	500,097	497,097		3,000
16	Hack wristwatches	759,299	745,010	2,237	12,052
15 to 16	Wristwatches	410,008	410,008		
7 to 9	do.	266,555	265,445	110	1,000
21	Elapsed time clocks	30,084	30,084		
11	Marine clocks	29,960			
15	Aircraft clocks	146,359	144,353		2,006
7 to 9	do.	173,178	169,806		3,372
Do.	Aircraft and tank clocks	285,227	283,352		1,875
	Gun camera timers	10,874			
	Special timers	10,239	4,168	6,071	
	Marine clock escapements	214,406	214,406		
	Special escapements	62,574		62,574	
	Altimeters	35,070	35,000		
	Ammeters	8,690	8,690		
	Drift sights	9,400	9,400		
	Magnetic compasses	1,814,400	1,814,400		
	Map measurers	89,860	89,860		
	Rate of climb indicators	35,000	35,000		
	Sapphire plug gages	3,052	3,052		
	Speedometers	2,078,500	2,078,500		
	Tachometers	9,510	9,510		
	Telescopes	37,600	37,600		
	Torque control mechanisms	16,110			
	Mechanical time fuzes	15,321,500	15,321,500		
	Rocket fuzes	220,000	220,000		
	Delay fuzes	6,323,800	6,323,800		
	Boosters	1,250,000	1,250,000		
	Fuze half blocks	4,312,300	4,312,300		
	Fuze plates	1,280,740	1,280,740		
	Jewel bearings	10,690,000	10,690,000		
	Miscellaneous watch parts	24,000,000	24,000,000		
	Miscellaneous fuze parts ²	293,043,000	293,043,000		
	Other precision parts ³	52,606,000	52,606,000		

¹ Bulova Watch Co.; Elgin National Watch Co.; Hamilton Watch Co.; Waltham Watch Co.² Escape gears, firing pins and shafts, hammers, pinions, springs, etc., supplied to: Eastman Kodak, Eclipse Machine, Frankford Arsenal, National Cash Register, Picatinny Arsenal, Remington Rand, and numerous other firms. Incomplete due to loss of records.³ Arbors, gears, levers, pinions, screws, springs, etc. supplied to: Brown & Sharpe, Chrysler, Ford, General Electric, Kollsman Instrument, Minneapolis-Honeywell, Raytheon, RCA, Sperry, Taylor Instrument, Western Electric, and others.

PARTIAL RECORD OF UNCLASSIFIED DEFENSE WORK PERFORMED BY BULOVA, ELGIN, HAMILTON, AND WALTHAM FROM JUNE 1950 TO JUNE 1954

	<i>Quantities in thousands</i>
Watches and aircraft clocks.....	194
Piezo-electric quartz crystals.....	348
Gear-autosyn assemblies.....	147
Miniature gyro pivot assemblies.....	16
Map measurers.....	30
Indicator tachometers.....	9
Clinometers.....	5
Mine detecting sets.....	8
Fuzes.....	9, 433
Mk 25.....	270
Mk 50.....	763
Mk 176.....	1, 904
Mk 181.....	1, 728
Mk 500 series.....	3, 250
Ex-100.....	912
T 234 E 2.....	606

Rear fitting devices (Mks 12, 13, 14, 15, and 16).....	9, 715
Reed spin switches.....	2, 468
Fuze parts produced on subcontract ¹	132, 976
Instrument parts produced on subcontract.....	28, 853

¹ Gears, pinions, pallets, shafts, arbors, plates, springs, etc., produced for 12 prime contractors other than manufacturers of jeweled watch movements, including: 30 million parts for Eastman Kodak Co.; 16.1 million parts for Farrington Manufacturing Co.; 18.4 million parts for Gruen Watch Co.; 16.2 million parts for King-Seeley Corp.; 38.6 million parts for U. S. Time Corp.

Not included are 41.7 million fuze parts produced by Waltham (who had no prime fuze contracts) for other jeweled watch manufacturers.

RESEARCH AND DEVELOPMENT

Significant research and development contributions have been, and are being made by the industry on the following critical military programs:

- (1) Improvement and standardization of mechanical time fuzes.
- (2) Development of electromechanical and electrical time fuzes.
- (3) Fuze miniaturization.
- (4) Development of low-temperature lubricants for precision mechanisms.
- (5) Development of timing release mechanisms for instrument parachutes.
- (6) Development of gear-autosyn units for converter and radio magnetic indicators.
- (7) Development of production methods for piezo-electric quartz crystals.
- (8) Research on mass production of jewel bearings and developing domestic source for producing jewel bearings.
- (9) Research on aerial cameras.
- (10) Development of new types of timepieces such as break-circuit chronometers and memory chronographs.
- (11) Redesign and improvement of aircraft clocks.
- (12) Research and development of gyro, safety, timing, and arming mechanisms for guided missile systems, including DART, DOVE, RAT, SPARROW, TALOS, and TERRIER.

BRISTOL, CONN., June 15, 1956.

HON. RICHARD BOLLING,

*Chairman, Subcommittee on Foreign Economic Policy,
Joint Economic Committee, House Office Building, Washington, D. C.*

DEAR MR. BOLLING: Since time was short at our hearing before your subcommittee on June 6, it was impossible to fully illustrate to the committee the unique abilities and skills of the domestic clock and watch industry. I would appreciate the opportunity to submit to you by way of illustration a picture of

which was accomplished on just one of the many fuzes on which this industry worked during World War II and the Korean war. I think this will give you an excellent idea of the abilities and skills to be found in this industry which can be duplicated nowhere else in our entire industrial armory.

I have selected the 500 series fuze for this illustration, because it is not only representative of the type of item on which this industry achieved volume production, but it is also the one in which was used the timing mechanism placed before your committee at our hearing. As I mentioned before, this is just illustrative of the sort of job that can be done by our industry on many of the items requiring large volume production and close tolerances which would be so urgently needed should war come. This fuze has been considered the workhorse of our fuze arsenal.

The 500 series fuze was produced in tremendous volume, and at one point the production was up to around 75,000 per day in this industry. Originally the fuze was an antiaircraft fuze, but before the Korean war was over it was being fired in guns from 75 millimeter on up to 8-inch. It had a time-setting range of from 3 seconds to 75 seconds and had to keep time within 15/100ths of a second. It is, therefore, distinctly a precision instrument. This precision instrument was fired with a force of 18,000 G's at various muzzle velocities running from 680 to 2,700 feet per second and rotating from 2,800 to 13,000 revolutions per minute, so you can see it was keeping extremely accurate time under the most difficult conditions. This fuze originated in the German horological industry and was brought to the United States about 1930, where it was taken up by Frankford Arsenal, who started production, got out the drawings and specifications, and did what they could to improve the fuze and make it productive under American methods of manufacture. It was then given to other industries to see what they could do to improve its quality and to attempt to get into volume production.

We are told that probably the best job by a nonhorological company was done by Eclipse Division of Bendix. After 2 years of work, they got their production up to almost 500 fuzes per day, which they considered to be the limit of their production. The other companies (all nonhorological) were unable to achieve even that production.

Finally the Government turned to the horological industry to see what could be done to improve the quality of the fuze, to reduce its cost, and, most important, to see what could be done about getting the fuze in volume. As a matter of fact, our Mr. Dudley S. Ingraham was at that time called to Washington for a meeting with General Barnes and Colonel Davis, and was asked what, in his opinion, the horological industry could do to build up the production of this fuze. He indicated that if our industry were permitted to redesign the fuze, use the laminated plates which you saw in the sample placed before you, along with blanked gears and drawn pinion rod and various other changes in the escapement, it would be possible to get out very substantial production using equipment, facilities, and know-how already available in the industry. The committee before which he appeared at that time asked him if he would consider taking a prime contract for 10,000 per day, and Mr. Ingraham indicated that our company undoubtedly could produce up to 10,000 per day, but if the Government would be willing to set up other fuze-assembly plants and allow our company to redesign the fuze and make the critical parts of the timing mechanism, it would be possible to rapidly reach a volume production of 50,000 fuzes per day. This offer apparently impressed the committee to such an extent that the train taking him back to New York City was held up at Philadelphia while samples of the fuze as well as specifications were turned over to Mr. Ingraham by Frankford Arsenal. Incidentally, sample parts for inspection using the new methods suggested and redesigning the fuze were turned over to Frankford Arsenal before the Government got the paperwork through for an order, so you can see there was very little delay once the Government went to a horological company. Actually, rather than 50,000 fuzes per day, we got up to 66,000 sets of parts per day, which parts were furnished to such concerns as National Cash Register Co., Eastman Kodak Co., Thomas A. Edison, Inc., Elgin National Watch Co., Hamilton Watch Co., Eclipse Division of Bendix Aviation Corp., and Frankford Arsenal, who were set up for the assembly of the fuze. Also during the Korean war we furnished the same parts to the Gruen Watch Co. and in the 3 years ending in 1954 had furnished them over 400 million sets of parts, mostly assemblies which made up the timing mechanisms for these fuzes. Not only did this industry provide the tremendous volume production that was needed when the chips were actually down, but in this particular instance it also improved the quality of the fuze.

As you recall, the jeweled watch plate which was shown to you was claimed to have holes held to within plus or minus 0.0003. The plates which were produced for this fuze in such tremendous volume as we have mentioned had their train holes held to within plus or minus 0.00025, so you can see we had even greater accuracy than is required in a fine jeweled watch.

The above accuracy, which resulted from the use of laminated plates and blanked gears in place of solid plates and cut gears provided an improvement in timing of approximately 25 percent. A 5 or 10 percent improvement would have been exceptional and even had the timing been less satisfactory, it would have been necessary to use our construction because it was the only known way that volume could be promptly achieved. However, it is quite phenomenal that the quality actually improved by 25 percent. Also, by using strip brass for fuze plates and blanking the plates out of the strip brass, tremendous savings were made in copper and brass which were very critical at that time.

Also the cost of the fuze was cut very substantially, which on the face of it meant a substantial saving in labor. It may be of interest at this point to remind you of how critical labor was and how important our industry was to the defense effort by this yardstick. During the Second World War, as you will recall, this company was allowed to hire only such labor as Washington gave it permission to hire. You will be very interested to know that the records show that in the year of 1944, the labor urgency rating for the horological industry in Connecticut was above the firearms industry, above the airplane industry, above the motor industry, and above the ball-bearing industry. In short, at times we had the highest labor urgency rating of any industry in the State of Connecticut. This should give you a pretty good idea of how important Washington thought our industry was at that time.

The question has been raised regularly as to whether or not the skills considered critical in the horological industry are not found elsewhere in other industries. There is no question but that given the time and the money and the manpower almost any company could duplicate the work that the horological industry does. For that matter, given those three requisites any other industry could eventually get into clock and watch manufacture. It may be interesting, however, to note that the specifications and details of the above-mentioned fuze have been given to a lot of other industries outside of the horological industry. It would be very interesting to see how many of these other industries bid on the specifications. We, ourselves, had a good many important companies come to us during these critical periods to ask us to furnish them with the plates and gears and pinions because they wished to bid on the fuze. When we told them that our capacity was completely absorbed, they did not put in a bid.

Directly relative to this situation, for example, is the Eastman Kodak Co. which is continually being cited as a nonhorological company that has successfully manufactured this 500 series fuze. What is not mentioned is that during World War II and much of the Korean war, Eastman Kodak Co. secured most of their critical parts for the 500 series fuze from the E. Ingraham Co. We furnished them the plates as well as a lot of dies, tools, and fixtures. These dies, tools, and fixtures, of course, represent horological know-how which was developed here at the E. Ingraham Co. We have made a good many tools for them, we have given them all of the specifications, and we have even had crews of Eastman Kodak engineers in our plant showing them all of the ramifications of making the mechanical time fuze. Apparently we slipped up on showing them everything because we find in our files a very interesting letter from Eastman Kodak referring to one of the parts of the 500 series fuze which we blank on a die with the teeth completely finished after blanking and shaving. A quote from Eastman Kodak's letter runs as follows: "Tom Gibbs tells me you are also making No. 5 gears on a press. This is something I have wanted to try for 10 years but our tool people say that you can't do it. One of these days we are going to try it anyway, although for the present we are cutting them in stacks on Fellow straightline generators."

Incidentally, by blanking the gears on a press by the subdie process we not only obtain much more accurate gears, but far less expensive gears and in much greater volume. This is the process by which we have been making our clock and watch gears for at least 40 to 50 years. We furnished many parts to other nonhorological industries so that they could assemble these fuzes. However, the fact that they have assembled fuzes in the past successfully does not mean that they could get into volume production rapidly if left entirely to their own devices. We know that they cannot.

It might be of interest to inject at this point the information that every single one of the horological companies received the coveted Army-Navy E, and most of the companies received more than one E. I wonder how many other industries can demonstrate such a proven record of achievement, particularly since only about 5 percent of all eligible American companies received this award.

I would appreciate very much if you would have this inserted in the record as an illustration of why the nonjeweled clock and watch industry is essential to any war effort. What we might be making 25 years from now I do not know, and I do not believe that anyone can tell me. However, the skills that made the above possible can be preserved only with day-by-day, week-by-week, and year-by-year production of clocks, watches, and other timing devices that can keep alive a strong horological industry in this country. These skills are not found in other industries and cannot be stockpiled. They can be kept alive only in a fair competitive economy, which is not continuously jeopardized by underpaid as well as child labor from foreign countries.

Very truly yours,

The E. INGRAHAM Co.,
SEYMOUR M. INGRAHAM.

P. S.—If you wish exceedingly authoritative confirmation of the above statements and of the importance of the clock and nonjeweled watch industry to national defense, may I respectfully refer you to ex-Gen. Levin H. Campbell, Chief of Ordnance in the last World War, and Mr. Roy T. Hurley, president, Curtiss-Wright Corp., Carlstadt, N. J.

ADDENDUM BY THE UNITED STATES TIME CORP. TO THE STATEMENT ON BEHALF OF DOMESTIC MANUFACTURERS OF PIN-LEVER WATCHES AND SPRING-POWERED CLOCKS

This statement has been prepared for submission to the Subcommittee on Foreign Economic Policy as an addendum to the statement on behalf of domestic manufacturers of pin-lever watches and spring-powered clocks dated June 6, 1956, and as a case study for consideration by the subcommittee in connection with recommendation No. 12 contained in the report of the Joint Committee on the Economic Report dated January 5, 1956. Recommendation No. 12 reads:

"Further study is required of the whole concept of defense essentiality if it is not to dominate over other necessary factors in trade policy. Not only should impartial criteria be discovered, but the whole concept of the mobilization based in the light of evolving military strategy should be reviewed."

It is hoped that this statement will aid in the discovering of "impartial criteria" for evaluating defense essentiality.

In its mass-ratio studies, the Air Force has estimated that from 10 to 40 pounds of airframe and powerplant are required in fighter aircraft and guided missiles for each pound of instrumentation the aircraft or missile contains. This makes it obvious that a principal requirement for missile and aircraft instrumentation is miniaturization. Miniaturization is a science and a skill with which we have been occupied, in the horological field, for a hundred years.

It is likewise obvious that miniaturization or subminiaturizing, as it is called when extraordinary manufacturing tolerances are required, must be coupled with the skills required to assemble microscopically small parts into functioning units month after month in great volume if the defense needs of the country are to be met. If it requires a dozen skills to make a small mechanism by model-shop methods it will require a hundred skills to translate the model-shop unit into an industrial outpouring of the sustained precision volume the military requires.

Knowing of this relentless effort to reduce the size and weight of aircraft and missile instruments, the United States Time Corp. arranged in 1953 with Sanders Associates, Inc., the engineers who designed it, to process and tool and produce the world's smallest and lightest rate gyroscope. It weighs $3\frac{1}{2}$ ounces, its diameter is less than an inch, and its length less than $2\frac{1}{4}$ inches. Because this gyro, weighing ounces, could replace units weighing pounds and requiring 10 times the space this flashlight-battery-size unit requires, it has been enthusiastically adopted and urgently required by the aircraft and missile makers.

In its January report, the Joint Economic Committee, while viewing skeptically the practice of manufacturers "to wrap themselves in the flag and to try to join the group of industries really vital to defense" states that "There are

legitimate defense needs and these should be met." We submit that the defense need for this gyro, judged by the most critical and impartial criteria that can be set, is a legitimate, top priority defense need. We believe that the answers to the following questions contain the formula or criteria for determining whether any given skills are to be established as top essential for defense:

1. Are the skills unique,
2. Are the products of these skills critically required by the military?
3. Can the skills produce the required product quickly?
4. Can the skills produce the required product in sustained volume over long periods?

Addressing these questions to this smallest of rate gyros, the answer to each question is "yes." There is no wrapping 'round of the flag here. Let us examine some of the facts that support the "yes" answer to each question:

1. It is to be noted that since the announced development of this miniature rates gyro during the early part of 1953, many gyro and instrument manufacturers have unsuccessfully tried to put a comparable miniature gyro into production. In many instances these efforts are being continued while in others it is known that efforts in this direction have been discontinued because of the difficulty in meeting application requirements on a production basis.

Whoever does not have the know-how of subminiaturization cannot build this gyro. It is difficult to define this know-how and it takes years to accumulate it. There are no short cuts to it and it cannot be learned from books or from schools. The working on small parts with close tolerances, which is the life work of the horological industry, engenders a specialized know-how in the die specialist (the most skilled of all toolmakers) the assembler and the whole team of technicians and administrator whose skills mesh from generation to generation to produce what outsiders cannot produce.

2. These small gyros are used in both aircraft and missile applications for stabilizing purposes and for the transmission of signals, in degrees per second, to the steering or control mechanisms of the guided vehicle. Mounted single or in packages of 2 or 3, signals transmitted will indicate rates of roll, rates of dive or climb and rates of turn, left or right. These rates are transmitted to meet precise specifications while operating in a temperature range of minus 55° centigrade to plus 85° centigrade. These gyros are the feeders of the information many other instruments require for their functioning.

3. The many skills needed to produce these gyros do now exist within our plants. They are subject to call within a matter of hours.

4. Present production is between 400 and 500 gyros per month (a high volume in this difficult field) with capacity now available for an anticipated schedule of approximately 2,000 per month during 1957.

A short review of what was involved in the enormous effort to tool for and produce these units is in order.

In order to meet the rigid requirements of rate gyro applications and at the same time to hold the size of the instrument to the very minimum, it was necessary that the assembly processing of this gyro be other than the conventional approach of putting things together with screws, bolts, nuts, and washers for holding parts together. It was decided that because of the very limited space available, each individual part of such a gyro must be a perfect fit with its mating part, thus making it possible to assemble a complete gyro by press fitting parts together in a manner to withstand the temperature variations of minus 55° centigrade to plus 85° centigrade and to withstand the shocks and vibrations experienced in flight application of guided aircraft and missiles. In order to maintain the assembly and performance explained here, it is necessary to machine and produce parts to tolerances of less than one ten thousandth of an inch or to tolerances of less than 30 times smaller than a human hair.

We approached this problem of producing miniature parts to extremely close tolerances with the confidence built upon our experience in the mass production of time pieces wherein we make parts in many instances smaller in size than the smallest gyro part. That our accumulated experience has led us to success is indicated by the production of over 5,000 gyros to date with a current rejection rate of less than 1 percent.

The small wheel in this gyro is approximately one-half inch in diameter, weighing about 22 grams. It operates at a speed of 24,000 revolutions per minute. The motor assembled inside of this wheel is approximately three-eighths of an inch in diameter and is wound with wire that is smaller in diameter than a human hair. These motors were initially wound by hand and required approximately 8 hours of labor for each assembly. With the skills and experience acquired over a period of many years in the designing and building of small and precise automatic equipment used in the mass production of watches, we were able to design and develop automatic winding equipment that makes it now possible to wind this same motor in less than 2 hours. Operator training time by the old method of hand winding was in the order of 4 to 5 months but has now been reduced to a period of about 1 month by the use of this automatic equipment.

The gyro wheel in its assembly is suspended within this small instrument by 2 torsion bars that are only nine-thousandths in diameter or less than 3 times the thickness of a human hair. This torsion bar, small as it is, must withstand the impact of a launched missile or the thrust of a jet plane in any of its maneuvers. Our experiences with small and finely finished pivots for watches was exactly the background required to work successfully with these torsion bars. A volume, however, could be written on the enormous problems, both in scope and number, involved in the proper heat treating of these torsion bars. Their heat treatment is extremely critical inasmuch as the .009 diameter section of the bar (a size not uncommon in the horological industry) must be able to withstand, without breaking, a pull test of 350,000 pounds per square inch. The sensitivity of the finished gyro is directly proportional to the sensitivity and hysteresis characteristics which result from this critical heat-treating operation.

The final assembly of this gyro requires special tooling and fixturing to be able to put these units together on a mass-production basis and to maintain the required quality performance. Instruments of this type can be assembled by highly skilled mechanics on a model-shop basis, but obviously with present-day defense requirements the high cost and low production potential of a model-shop type of operation cannot be tolerated. It becomes a necessity that we be prepared to produce instruments of this type at high production rates and that we be able to do so with semiskilled labor. It is also extremely important that the processing of such instruments be done in a manner that makes it possible to use female labor.

Again, our background in the design and building of miniature tools and assembly fixtures makes it possible for us to fixturing assembly lines so that our female help, with their background in the handling and assembling of the small parts used in the horological industry, can be trained to assemble these gyros in a few months as compared to the years of training a skilled mechanic working on a model-shop basis requires.

Among the many other skills that might be mentioned as necessary to the production of these gyros is the process called rolling and tumbling. By applying this technique, which is known in its greatest refinement probably only to the horological industry, it is possible to apply a near-perfect finish to thousands of small parts simultaneously by rolling and tumbling them in a revolving barrel. The process sounds simple but is actually almost an art and replaces many extra hand burring and machining operations.

Attached to this statement are eight photographs. The first shows the gyro itself in actual size. The second and third show two of the types of packages into which these gyros are integrated after leaving our assembly line. The remaining photographs illustrate the intricate nature of the costly tooling required to produce these gyros. Also attached as schedule A is a list of our other present assignments in the miniaturization field from the military. This is good evidence of the extent to which the missile age needs the horological skills.

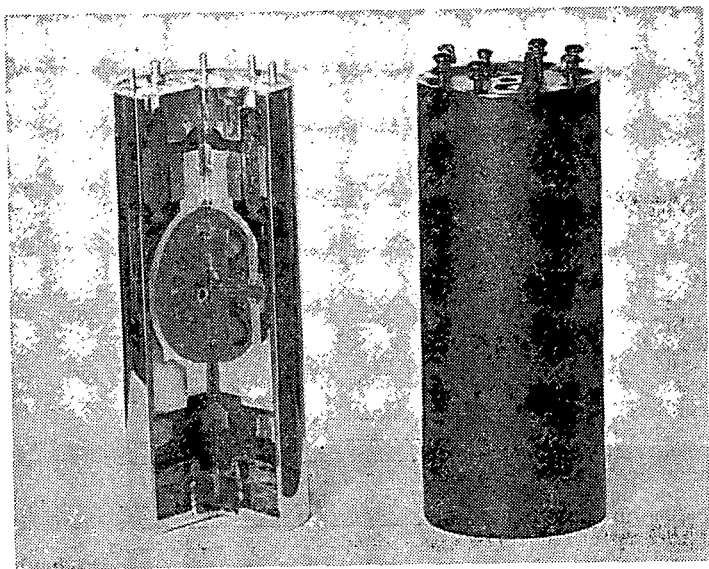
It is not our assignment here to translate the foregoing into a recommended course of action for preserving the skills we have described. The skills are being increasingly threatened by international trade factors which the brief to be filed on behalf of our industry will clearly set forth.

We have presented only the example of this gyro to show one American horological company's urgently needed response to a critical challenge in the field of national defense. We invite the application of any criteria to its evaluation.

SCHEDULE A

PROGRAMS FOR WHICH MINIATURE RATE GYROS ARE BEING SUPPLIED TO THE
AIR FORCE AND THE NAVY

Program:	<i>Status</i>
F86K radar antenna stabilization-----	Production.
Sparrow missile-----	Pilot production.
Hustler missile-----	Do.
Cross bow missile-----	Do.
F-100 Nassar-----	Do.
F-7A, F-107 radar antenna stabilization-----	Do.
Aero 11A and 11B radar antenna stabilization-----	Do.
MA-1 antenna stabilization fire control-----	Do.
Used:	
F102 Convair	
F105 Republic	
F104 Lockheed	
CF105 Canadian	
7-A missile air to air-----	Do.
Q-5 supersonic drone-----	Do.
Camera stabilization platform-----	Do.
Flight director auto pilot helicopter-----	Evaluation.
Fighter bomber auto pilot F100 series-----	Do.
Hustler auto pilot B-52-----	Do.
Rascal missile-----	Do.
Terrier BW-0-----	Production.
Terrier BW-1-----	Do.
Talos missile-----	Pilot production.
Advanced terrier XHW-1-----	Do.
Aero 13B radar gun-fire control-----	Evaluation.
Aerial camera stabilization-----	Do.
Tartar missile-----	Do.
X1A MacDonald F101-----	Do.
Advanced Terrier XHWT-1-----	Do.



SUBMINIATURE RATE GYRO

Size, $6\frac{1}{16}$ by $2\frac{3}{16}$ inches ; weight, $3\frac{1}{2}$ ounces

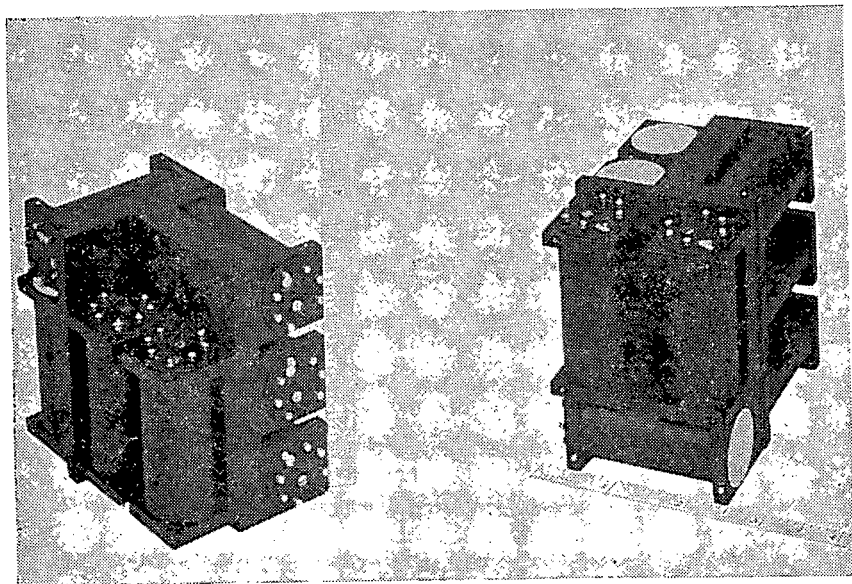
Subminiature rate gyro used as a single unit or in packages of 2 or 3 for aircraft or missile application.

Each unit will transmit a signal of rate in degrees per second in 1 of 3 axes—Pitch, Roll, Yaw.

Pitch : Rate of dive or climb in degrees per second.

Roll : Rate of side roll in degrees per second.

Yaw : Rate of turn in degrees per second.

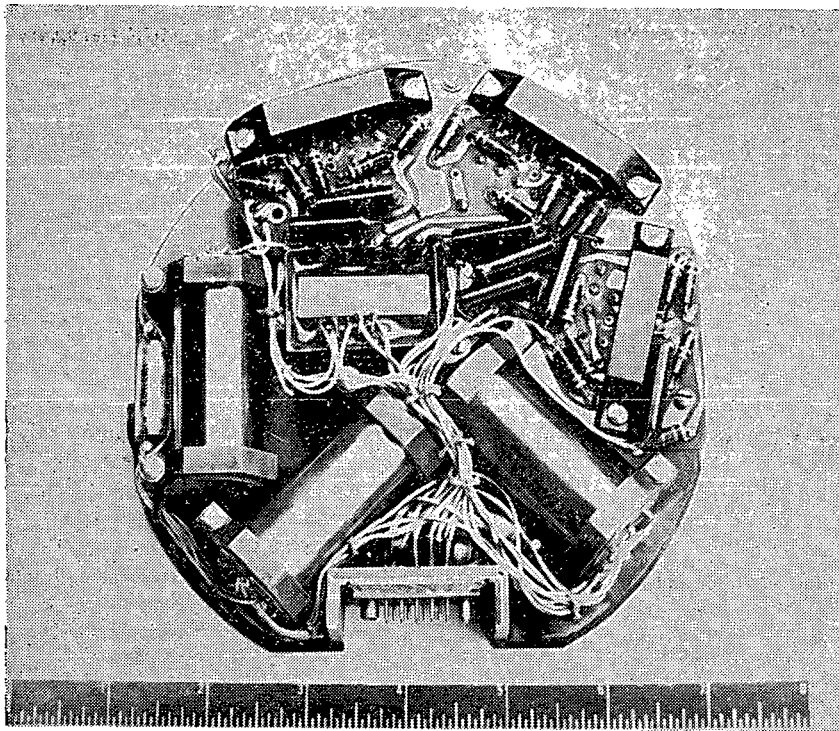


SUBMINIATURE RATE GYRO PLATFORM APPLICATION

Package containing 6 miniature rate gyros and 2 accelerometers which is the heart of a stable platform for aircraft and missile inertial guidance giving absolute latitude and longitude reference.

Gyros are used in this application to stabilize the platform.

Accelerometers are used to sense and transmit accelerations to computers which compute geographic coordinance of the vehicle.



THREE SUBMINIATURE RATE GYRO PACKAGE

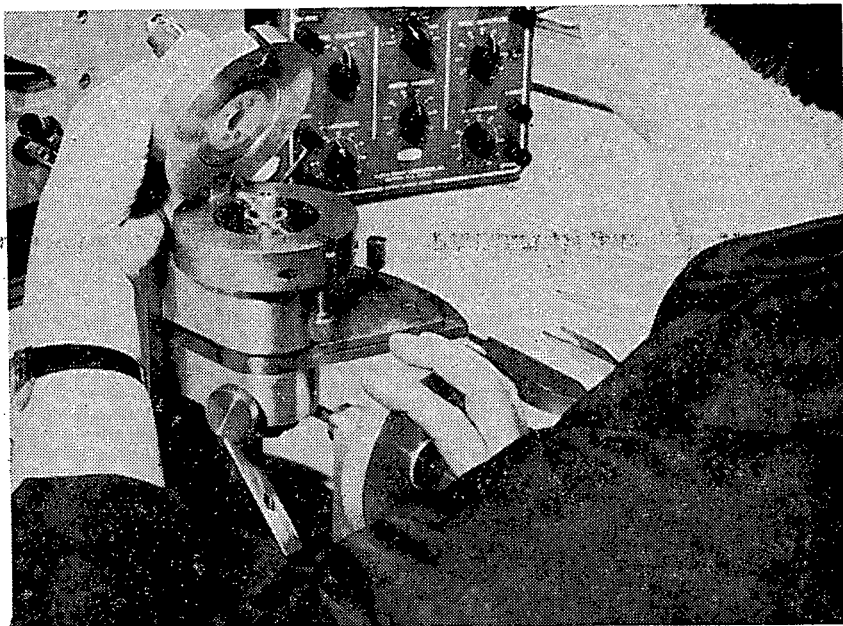
Use in aircraft or missile application

Package will transmit signals in three axes to steering or control mechanism. Signal transmitted:

Pitch: Rate of dive or climb in degrees per second.

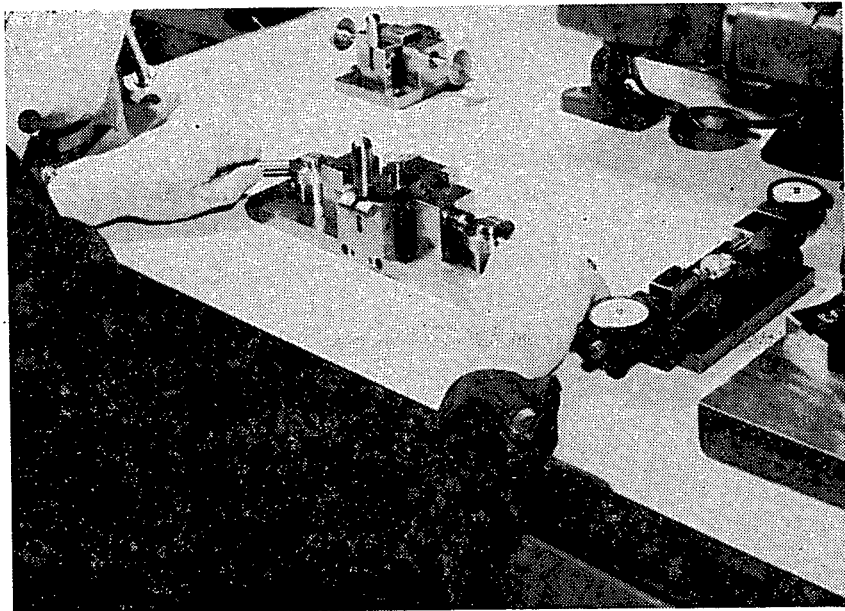
Roll: Rate of side roll in degrees per second.

Yaw: Rate of turn in degrees per second.



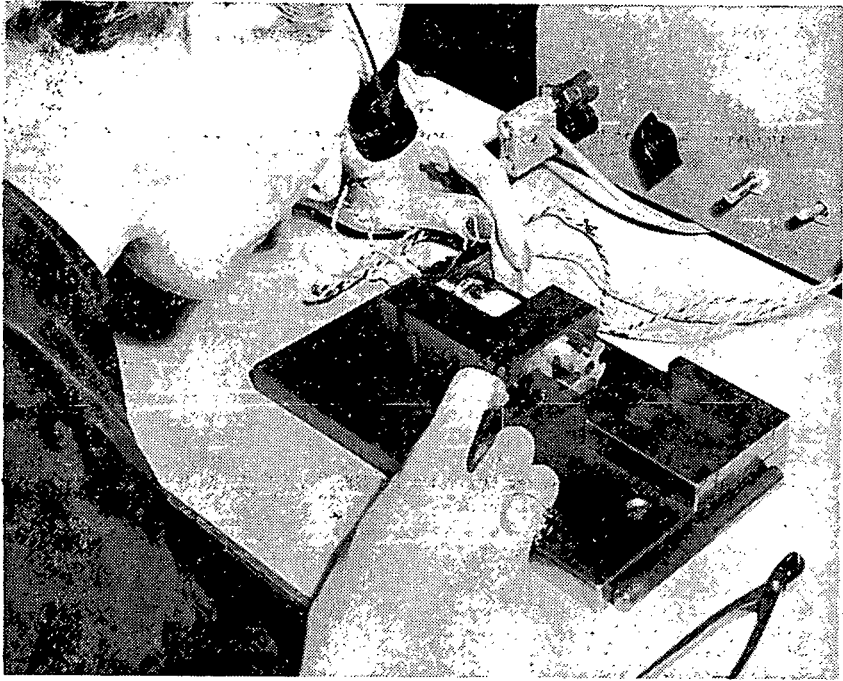
PICKOFF ASSEMBLY COORDINATING FIXTURE

Pickoff stator and pickoff rotor are matched in this fixture for sensitivity and electronic output.



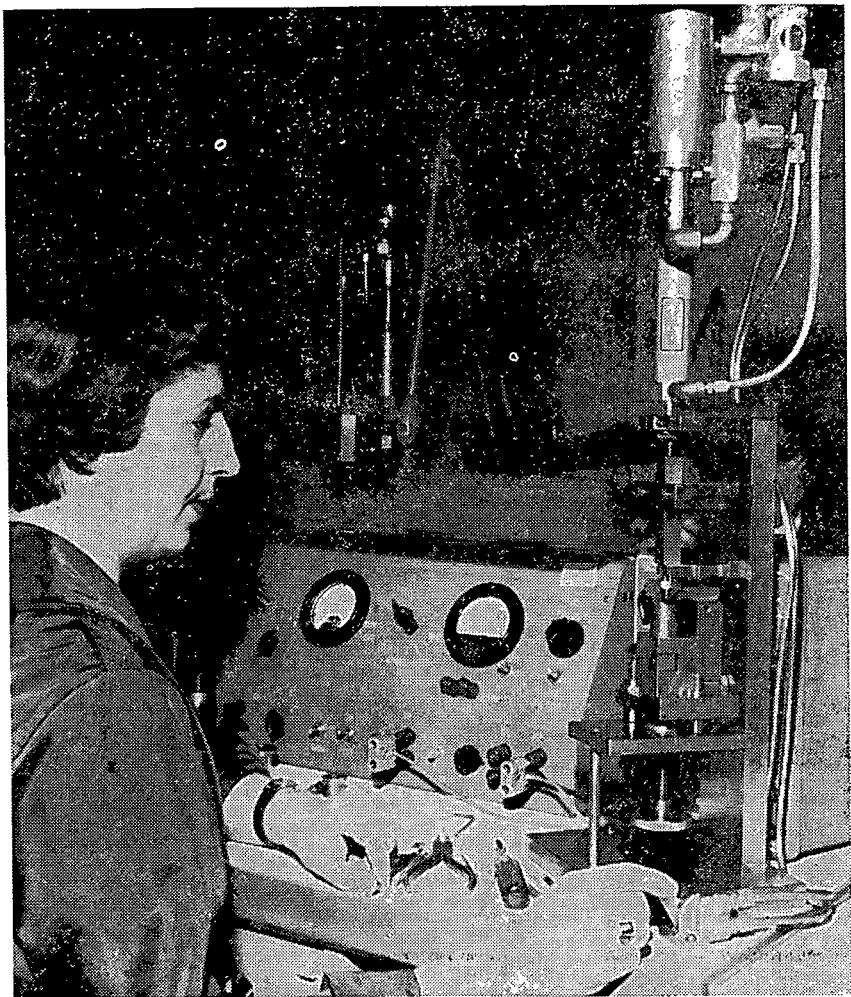
ASSEMBLY TORSION BAR TO GIMBAL

Ream and taper fit torsion bar into gimbal to alignment of 0.0003 full indicator reading from bar to bar. Alinement of bars if not held to very close tolerance indicated will directly affect the output signal of the gyro.



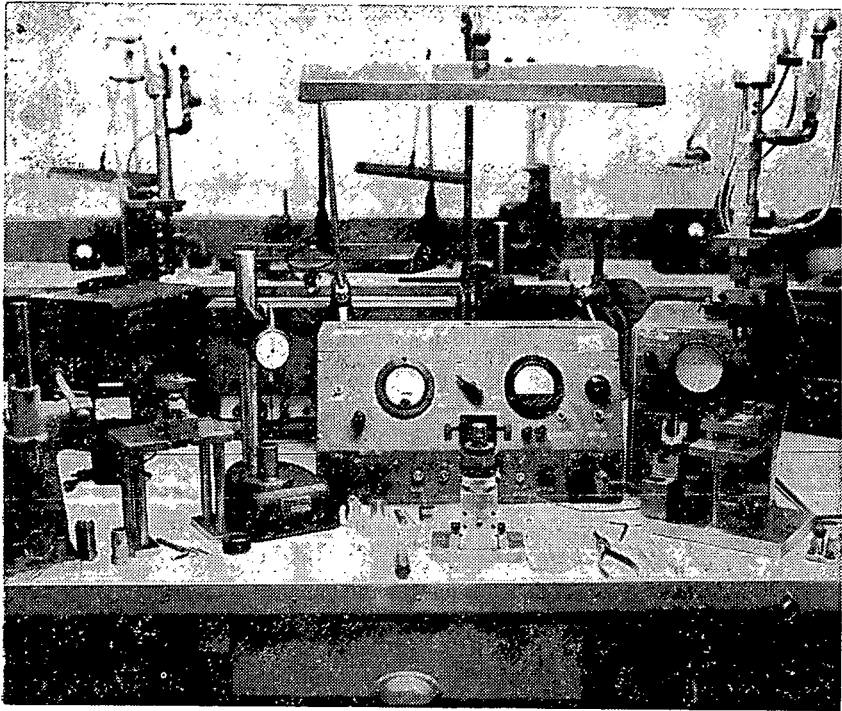
OPEN TEST FIXTURE

Internal parts of gyro are pressed together in an open fixture to be balanced and electrically aligned for zero output. All moving parts of this tool are held to tolerances of one ten-thousandth of an inch or better. The accuracy of this fixture is comparable to the completed gyro.



FINAL ASSEMBLY FIXTURE

Shown here are the internal parts of the gyro being pressed into the outer housing of the unit. Alinement of this fixture must be held to tolerances of tens of thousandths of inches in order to maintain the specified performance of the finished gyro.



ASSEMBLY FIXTURES

Assembly fixtures used for press fitting parts together without use of screws or other holding devices. Tooling used must be held to tolerances of tens of thousandths of inches in order to maintain this type of assembly.

BULOVA WATCH Co., Inc.,
Flushing, N. Y., June 11, 1956.

HON. RICHARD BOLLING,

Chairman, Subcommittee on the Foreign Economic Policy, Joint Committee on the Economic Report, House Office Building, Washington, D. C.

DEAR MR. CHAIRMAN: In the course of the hearings recently concluded by your subcommittee, you stated that supplemental written statements bearing upon matters raised at the hearings could be submitted by 4:30 p. m. Monday, June 11, for possible inclusion in the printed record. This letter is submitted to clarify certain points relating to the "upjeweling" question that were raised during the 2d day of the hearings, as well as 1 or 2 other points which were raised by my fellow importers.

THE "UPJEWELING" SITUATION

As Congressman Talle indicated, I assume your subcommittee would probably not feel it was within its function to make a determination of this issue which is presently pending before the House Ways and Means Committee. I will, therefore, confine these remarks to a brief summary of the upjeweling situation in an effort to set the record straight.

The two identical bills, H. R. 11436 and 11437 introduced on a bipartisan basis by Representatives Mills and Reed on May 24, 1956, are designed to plug a loophole in the 1930 Tariff Act. This loophole permits watch movements that are specially designed or engineered to contain more than 17 jewels, but which can function as 17-jewel-or-less-watches at the time of importation, to be imported at the relatively low tariff rate of \$3.75 or less—rather than the rate of \$10.75 enacted by Congress and made applicable to imported over-17-jewel watches.

After importation, it is easy to insert or substitute the additional jewels and advertise and sell the watch as a 19-, 21-, 23-, or higher-jeweled watch, thus escaping payment of between \$7 and \$8 of the congressionally enacted rate of duty on each such watch.

This loophole in the act has for some time been considered serious enough by the Treasury Department to require immediate action by the Congress—not only to prevent evasion of the duty rates prescribed by Congress, but also to maintain the status quo in the watch industry. As Assistant Secretary of the Treasury Rose said last July:

"After considering this unjeweling question, the interested departments and agencies felt that the possibility for and probability of disturbance of the status quo in the watch industry through upjeweling were great enough so that action should be taken promptly.

"The President's finding on the recommendation of ODM regarding the defense essentiality of the skills of the jeweled-watch industry remains unchanged. It was thought that failure to act on the upjeweling question might more than offset the anticipated results of the tariff increase on watches ordered by the President last year. For this reason, it was felt that the situation should be called to the attention of the Congress with the recommendation that corrective legislation be enacted to close the loophole which had just developed in the tariff structure."¹

SWISS BAN ON UPJEWELING BEFORE SEPTEMBER 1954

The subcommittee should bear in mind that upjeweling was not a serious problem until September 1954. Before that time this practice was banned by the Swiss cartel itself as bad for the watch and as "disloyal competition." This ban was rigidly enforced by the cartel, with any violations subject to severe penalties and fines. In fact, such a fine was imposed upon one of the importers who testified before you on June 5 (the Benrus Watch Co.), the fine being for several violations of the ban on upjeweling in 1948. (A contemporary record of this fine and the surrounding circumstances was included in the July 1955 Upjeweling Hearings, House Ways and Means Committee, at p. 85.)

On September 9, 1954, the Swiss trust repealed this longstanding ban on upjeweling, and has since promoted a program to facilitate that practice by the development of trick techniques and devices with all the ingenuity at its command. (The text of the first FH repeal regulation is reproduced in the Upjeweling Hearings, at p. 88.) This repeal action was in direct retaliation against President Eisenhower's tariff decision of July 27, 1954, and was a deliberate attempt to circumvent that decision by destroying the only substantial market remaining to the United States producers—namely the market for 21- and 23-jewel watches.

ADMINISTRATION ACTION TO CONTROL UPJEWELING

Faced with this situation—threatening not only the evasion of duties under the law, but, more importantly, threatening the last remaining defense base of the domestic industry—the administration acted promptly. The early forms of upjeweling could be covered as a technical matter by a Treasury interpretation or ruling, issued March 16, 1955, under the "substitutes for jewels" provision of the act. As later devices and special movements to facilitate upjeweling were devised by the Swiss, however, the Treasury decided that the problem should be covered once and for all by legislation closing the door to any and all forms of upjeweling.

Therefore, last July the Treasury proposed such legislation (H. R. 7466 and H. R. 7467) which would have treated as a jewel for duty purposes any place in an imported watch movement in which a jewel was in fact inserted any time within 3 years after importation. Following 2 days of hearings, this legislation was favorably reported out by a majority of the Ways and Means Committee (see H. Rept. 1597), but the session ended before any further action was possible.

Subsequently the Treasury decided that another form of upjeweling legislation would be desirable, which has been embodied in the current bills, H. R. 11436 and H. R. 11437, mentioned above. These bills provide a processing tax of \$8 on any upjeweling done in this country that raises the jewel count to 18 or more, whether on a domestically made or imported watch movement. This revised

¹ Hearings, Jewel Substitutes in Watch Movements, H. R. 7466, H. R. 7467, House Ways and Means Committee, July 27 and 28, 1955, p. 11—hereinafter referred to as the "upjeweling hearings." A copy of the complete hearings is enclosed for the convenience of the subcommittee.

version was felt to be necessary by the Treasury, we understand, for at least two reasons.

One reason for the new approach was to meet certain objections raised by the importers and others to the earlier bills—for example, that the 3-year waiting period was unfair to legitimate importers (who never had indulged and never would indulge in the practice of upjeweling), that the bill would be difficult to administer, and that it was a departure from normal tariff-levying principles. In view of the Treasury's efforts to eliminate these types of technical objections raised by the importers, I was rather surprised at that portion of Mr. Anderson's testimony opposing these new bills on the ground that they were not, in form, amendments to the Tariff Act.

UPJEWELING BY MEANS OF SEPARATE IMPORTATION OF SELF-WINDING MECHANISMS

A second reason for the changed form of the legislation was the development of a new form of upjeweling device by the Swiss and the importers. This development consisted of a self-winding watch movement so designed and constructed that it could operate without the self-winding mechanism, which mechanism could be readily detached after assembly. The Treasury feels that under existing law any such movement containing 17 or less jewels without the self-winding mechanism can be imported in one package at the \$3.75 or lower rate and the detached jeweled self-winding mechanism imported separately at a duty of about \$1.05. The two items can then be put together in a few seconds and advertised and sold as a 19-jewel or 21-jewel or 23-jewel self-winding watch. As in other forms of upjeweling, the intent of Congress to impose a \$10.75 duty on all watch movements containing more than 17 jewels can thus be circumvented.

The current bills are, therefore, considered by the Treasury, by the administration, and by members of both parties in the House to be necessary to control this and all other forms of upjeweling. Contrary to the assertion of the importers, these bills do not involve an increase in the present tariff rates, but are intended merely to prevent evasion and assure collection of duties on watches of various jewel counts at the respective rates specified by Congress.

There are also 1 or 2 other matters raised by the testimony of my fellow importers that require correction or explanation.

VOLUME OF IMPORTS DESIGNED FOR UPJEWELING

Certain testimony of the importers implied that the upjeweling problem could not be very serious, since relatively few movements in this category have been imported. It is true that the volume of such imports has been slight, but this is due entirely to the firm action of the Treasury as reflected in its March 1955 ruling and the pendency of the July 1955 bills having been favorably reported by the Ways and Means Committee. No importer is going to risk a large investment in special movements designed for upjeweling as long as any of the pending bills has a reasonable likelihood of passage. However, there will inevitably be a flood of such imports if this session should end without passage of an upjeweling bill.

THE 1933 "BULOVA" CASE

In his testimony on June 5, one of my fellow importers incorrectly described the 1933 Bulova case as involving and permitting upjeweling. This case had nothing whatsoever to do with upjeweling, as I explained last July in a letter to Chairman Cooper, of the House Ways and Means Committee, in response to a similar misstatement made by the same importer. To keep the record straight, let me quote from the pertinent part of that letter:

"Another matter which I wish to discuss in this supplemental statement is the Bulova case, which was referred to in the course of the hearings yesterday. In answer to a question addressed to me by Representative Forand, of Rhode Island, I correctly summarized the true nature of this case. Since I think it may be of interest to your committee to have the full text of the court's opinion in the Bulova case incorporated in the record of your hearings, I am attaching hereto a copy of the court's opinion. As you will note, and as I testified yesterday, the Bulova case had nothing whatsoever to do with upjeweling—in spite of the unsupported statements to the contrary by one of the witnesses before your committee. The Bulova case, as I testified before your committee, was a case involving the importation of watch movements containing 7 jewels and 8 bouchons, or bushings. The question before the court was whether such watches

were dutiable as 7-jewel watches, or as 15-jewel watches on the basis that the bouchons might be said to be substitutes for jewels. The court held that the watches were properly dutiable as 7-jewel watches, since the bouchons were not, in a proper sense of the word, substitutes for jewels. You can review the court's opinion from beginning to end, and you can review also the briefs filed in this matter by all parties concerned, without finding any reference whatever to the subject of upjeweling. Any statement or implication to the contrary at your hearings yesterday was incorrect, since, as I have already noted above, the true state of affairs was as described by me in my answer to Representative Forand's question."

(The above excerpt is reproduced in last July's Upjeweling Hearings, at p. 73, and the full text of the Bulova case—which I submitted to the House Ways and Means Committee for its records—is also reproduced therein, starting at p. 78.)

ADJUSTMENTS

The subject of adjustments was also touched upon by importers. This question, particularly as to the correctness and validity of the Treasury's practice and rulings on the definition of dutiable adjustments under the 1930 act, has been thoroughly investigated by the Senate Investigating Subcommittee of the Government Operations Committee. Since the matter is still pending before that subcommittee, and since, in any event, it hardly seems pertinent to your inquiry, I shall not attempt here to go into the complexities of this subject. However, if desired, I am sure an objective appraisal of any aspect of the adjustments question could be obtained from the staff of the Senate Investigating Subcommittee.

If there is any further information I can give that would be helpful to you or the staff in considering the problems before you, I hope you will advise me.

Sincerely yours,

ARDE BULOVA.

UNITED STATES DISTRICT COURT SOUTHERN DISTRICT OF NEW YORK

Civil Action No. 96-170. Filed October 19, 1954

UNITED STATES OF AMERICA, PLAINTIFF *v.* THE WATCHMAKERS OF SWITZERLAND INFORMATION CENTER, INC.; FEDERATION SUISSE DES ASSOCIATIONS DE FABRICANTS D'HORLOGERIE; EBAUCHES, S. A.; FOOTE, CONE & BELDING; AMERICAN WATCH ASSOCIATION, INC.; BULOVA WATCH COMPANY, INC.; BENRUS WATCH COMPANY; GRUEN WATCH COMPANY; LONGINES-WITNAUER WATCH COMPANY; GRUEN WATCH MANUFACTURING COMPANY, S. A.; ETERNA, A. G. UHRENFABRIK; WITNAUER ET CIE, S. A.; MONTRES ROLEX, S. A.; CONCORD WATCH CO.; ETERNA WATCH COMPANY OF AMERICA; DIETHELM AND KELLER (USA) LTD.; THE AMERICAN ROLEX WATCH CORPORATION; RODANA WATCH COMPANY, INC.; MOVADO WATCH AGENCY, INC.; JEAN R. GRAEF, INC.; NORMAN M. MORRIS CORPORATION; THE HENRI STERN WATCH AGENCY, INC.; CYMA WATCH CO., INC.; WYLER WATCH AGENCY, INC., DEFENDANTS

COMPLAINT

The United States of America, by its attorneys, acting under the direction of the Attorney General of the United States, brings this civil action against the defendants, and complains and alleges as follows:

I. JURISDICTION AND VENUE

1. This complaint is filed and these proceedings are instituted under section 4 of the Act of Congress of July 2, 1890 (ch. 647, 26 Stat. 209 (15 U. S. C. sec. 4)), as amended, entitled "An act to protect trade and commerce against unlawful restraints and monopolies," commonly known as the Sherman Act, in order to prevent and restrain continuing violations by the defendants, as hereinafter alleged, of section 1 of said Act, and under section 74 of the Act of Congress of August 27, 1894 (ch. 349, 28 Stat. 509 (15 U. S. C. sec. 9)), as amended, entitled "An Act to reduce taxation, to provide revenue for the Government and for other purposes," commonly known as the Wilson Tariff Act, in order to prevent and restrain continuing violations by the defendants, as hereinafter alleged, of section 73 of said Act (15 U. S. C. sec. 8).

2. The alleged violations of law hereinafter described have been and are being carried out in part within the Southern District of New York, and all of the defendants maintain offices or transact business and are found within the Southern District of New York.

II. THE DEFENDANTS

3. The following corporations and associations are made defendants herein. Each is a corporation or association organized and existing under the laws of the State or county indicated below and each has its principal office at the location designated below :

Name of corporation	State or country of organization	Principal office
Federation Suisse des Associations de Fabricants d'Horlogerie (hereinafter referred to as FH).	Switzerland.	Bienne, Switzerland.
Ebauches, S. A. (hereinafter referred to as Ebauches SA).	.....do.....	Neuchatel, Switzerland.
The Watchmakers of Switzerland Information Center, Inc., wholly owned subsidiary of defendants FH and Ebauches SA (hereinafter referred to as Watchmakers of Switzerland NY).	New York..	30 5th Ave., New York, N. Y.
Foote, Cone & Belding, agent for defendants FH and Ebauches SA (hereinafter referred to as Foote).	.....do.....	247 Park Ave., New York, N. Y.

4. American Watch Association, Inc. (hereinafter referred to as AWA) is made a defendant herein. The AWA, an association of importers of Swiss watches including some of the defendants named herein, is a corporation organized and existing under the laws of the State of New York with principal offices at 39 Broadway, New York, N. Y.

5. The following corporations are made defendants herein. Each is a corporation organized and existing under the laws of the State or country indicated below, and each has its principal place of business and its watch manufacturing facilities at the locations designated below :

Name of corporation	State or country of incorporation	Principal place of business	Manufacturing facilities
Bulova Watch Co., Inc. (hereinafter referred to as Bulova).	New York....	75-20 Astoria Blvd., Jackson Heights, N. Y.	Jackson Heights, N. Y.; Woodside, N. Y.; Bienne, Switzerland.
Bénrus Watch Co. (hereinafter referred to as Benrus).	.....do.....	200 Hudson St., New York, N. Y.	La Chaux de Fonds, Switzerland.
Gruen Watch Co. (hereinafter referred to as Gruen Ohio).	Ohio.....	Cincinnati, Ohio.	Bienne, Switzerland; Time Hill, Cincinnati, Ohio.
Longines-Wittnauer Watch Co. (hereinafter referred to as Longines NY).	New York....	580 5th Ave., New York, N. Y.	Geneva, Switzerland.
Gruen Watch Manufacturing Co., S. A., wholly owned subsidiary of defendant Gruen Ohio (hereinafter referred to as Gruen SA).	Switzerland..	Bienne, Switzerland.	Bienne, Switzerland.
Eterna, A. G. Uhrenfabrik (hereinafter referred to as Eterna SA).	.....do.....	Grenchen, Switzerland.	Grenchen, Switzerland.
Wittnauer et Cie, S. A., wholly owned subsidiary of defendant Longines NY (hereinafter referred to as Wittnauer).	.....do.....	Geneva, Switzerland.	Geneva, Switzerland.
Montres Rolex, S. A. (hereinafter referred to as Rolex SA).	.....do.....	Bienne, Switzerland.	Bienne, Switzerland.

6. The following American corporations are made defendants herein. Each is a corporation organized and existing under the laws of the State indicated below; each has its principal place of business at the location designated below :

each is exclusive American agent for its Swiss principal and each imports its watches from its Swiss principal, as indicated below :

Name of corporation	State of incorporation	Principal place of business	Principal
Concord Watch Co. (hereinafter referred to as Concord NY).	New York	625 Madison Ave., New York, N. Y.	Concord Watch Co., S. A.
Eterna Watch Company of America, wholly owned subsidiary of defendant Eterna SA, (hereinafter referred to as Eterna NY).	do	677 5th Ave., New York, N. Y.	Eterna SA.
Diethelm and Keller (U. S. A.), Ltd. (hereinafter referred to as Diethelm NY).	do	do	Fabrique l'Horlogerie E. Homberger-Rauschenbach ci-devant, International Watch Co.
The American Rolex Watch Corp., wholly owned subsidiary of defendant Rolex SA (hereinafter referred to as Rolex NY).	do	580 5th Ave., New York, N. Y.	Rolex SA.
Rodana Watch Co., Inc. (hereinafter referred to as Rodana NY).	do	745 5th Ave., New York, N. Y.	Rodana, A. G.
Movado Watch Agency, Inc. (hereinafter referred to as Movado NY).	do	610 5th Ave., New York, N. Y.	Fabrique Movado, S. A.
Jean R. Graef, Inc. (hereinafter referred to as Graef NY).	do	do	Girard Perregaux & Co., S. A.; Graef & Co. Fabrique Mimo, S. A.
Norman M. Morris Corp. (hereinafter referred to as Morris NY).	do	655 Madison Ave., New York, N. Y.	Societe Anonyme Louis Brandt & Frere, Omega Watch Co.; E. Mathey Tissot & Co.
The Henri Stern Watch Agency, Inc. (hereinafter referred to as Stern NY).	do	587 5th Ave., New York, N. Y.	l'Ancienne Manufactured' Horlogerie Patek Philippe & Co., S. A.; Perret et Berthoud, S. A.; Lavina, S. A.
Cyma Watch Co., Inc. (hereinafter referred to as Cyma NY).	do	681 5th Ave., New York, N. Y.	Cyma Watch Co., S. A.
Wylér Watch Agency, Inc. (hereinafter referred to as Wylér NY).	do	630 5th Ave., New York, N. Y.	Fabriques de Montres Wylér, S. A.

III. THE COCONSPIRATORS

7. The following Swiss corporations and associations connected with the Swiss Watch industry are named as coconspirators herein :

(a) Parties to manufacturing contracts :

Union des Branches Annex de l'Horlogerie (hereinafter referred to as UBAH), La Chaux de Fonds, Switzerland.

Societe Generale de l'Horlogerie de Suisse (hereinafter referred to as Superholding), Neuchatel, Switzerland.

(b) Swiss manufacturers of brand-name watches imported by American defendants named in Paragraphs 5 and 6 above :

<i>Swiss manufacturer</i>	<i>American importer defendants</i>
Compagnie des Montres Longines Francillon, S. A., St. Imier, Switzerland.	Longines NY
Thommen Watch Co., Ltd., Waldenburg, Switzerland	Do.
S. A. Ancienne Fabriques George Piaget & Co., La Cote-Aux-Fees, Switzerland.	Do.
Ancienne Fabrique Vacheron and Constantin, S. A., Geneva, Switzerland.	Do.
Societe De Vente Des Produits Jaeger-Le Coultre, S. A., Geneva, Switzerland.	Do.
Fabrique l'Horlogerie E. Homberger-Rauschenbach ci-devant International Watch C., Schaffhausen, Switzerland.	Diethelm NY
Fabrique Movado, S. A., La Chaux de Fonds, Switzerland	Movado NY
Concord Watch Co., S. A., Bienne, Switzerland	Concord NY
E. Mathey Tissot & Co., Ponts-de-Martel, Switzerland	Morris NY
Societe Anonyme Louis Brandt & Frere, Omega Watch Co., Bienne, Switzerland.	Do.
Rodana, S. A., Grenchen, Switzerland	Rodana NY

Girard Perrgaux and Co., S. A., La Chaux de Fonds, Switzerland	Graef NY
Graef and Co., Fabrique Mimo, S. A., La Chaux de Fonds, Switzerland	Do.
Fabriques de Montres Wyler, S. A., Bienne, Switzerland	Wyler NY
Cyma Watch Co., S. A., La Chaux de Fonds, Switzerland	Cyma NY
Lavina, S. A., Villeret, Switzerland	Stern NY
l'Ancienne Manufacture d-Horlogerie Patek Philippe & Co., S. A., Geneva, Switzerland	Do.
Perret et Berthoud, S. A., Geneva, Switzerland	Do.

8. The following corporations, hereinafter referred to collectively as repair parts importers, are named as coconspirators herein:

The Newall Mfg. Co., Chicago, Ill.
 Henry Paulson & Co., Chicago, Ill.
 C & E Marshall Company, Chicago, Ill.
 Swartzchild & Company, Chicago, Ill.
 Hammel, Riglander & Co., Inc., New York, N. Y.
 M. J. Lampert & Sons. Inc., New York, N. Y.
 B. Jadow Inc., New York, N. Y.

9. The acts alleged in this complaint to have been done by each of the corporate or association defendants named herein were authorized or done by officers, agents, or employees of said defendants.

IV. DEFINITION OF TERMS

10. As used herein, the term "watches" refers to: (a) a jewelled watch indicating time designed to be worn or carried and containing a jewelled lever escapement utilizing a minimum of seven jewel bearings; (b) the movement of a jewelled watch which consists of the entire jewelled watch mechanism including the dial and hands by excluding the case and crystal.

11. As used herein, the term "ebauches" refers to all the parts making up a movement other than regulating parts, mainspring, hands, and dial.

12. As used herein, the term "component parts" refers to the watch case, the dial, the hands, and all of the parts contained in the movement including the ebauche, plate, the escapement, balance wheels, hairsprings, mainsprings, and jewel bearings utilized in the manufacture of assembly of the watch.

13. As used herein, the term "repair parts" refers to component parts when utilized solely for purposes of repair.

14. As used herein, the term "jewel bearings" refers to synthetically-made jewels utilized in a watch or in any timing mechanism primarily for the purpose of reducing friction.

15. As used herein, the term "watch manufacturer" refers to a company which produces watches and includes companies which produce some or all of their own component parts as well as companies which merely assemble such parts.

V. NATURE OF TRADE AND COMMERCE INVOLVED

16. The watch industry in the United States consists of the manufacture, importation, and sale for domestic and export use of watches, component parts, and repair parts as defined above.

17. Over 95 percent of watches, component parts, and repair parts, including jewel bearings, imported into the United States are purchased from concerns located in Switzerland.

18. In 1953, total sales of watches in the United States amounted to about 12 million units valued at wholesale in excess of \$225,000,000, of which approximately 20 percent were manufactured in the United States and approximately 75 percent were imported from Switzerland.

19. In 1953, imports of watches into the United States from Switzerland totaled approximately 10 million units.

20. In 1953, total exports of watches from the United States amounted to approximately 200,000 units.

21. Most of the watches, component parts, and repair parts which are subject to the combination and conspiracy hereinafter alleged are shipped and sold by the manufacturing and importing defendants from plants located in the United States and Switzerland to importers, distributors, jobbers, and retailers located in various states of the United States other than the state or country wherein their respective manufacturing plants or places of business are located.

VI. BACKGROUND OF THE CONSPIRACY

22. The Swiss watch industry consists for the most part of numerous medium sized and small enterprises divided into the following three principal classifications:

- (a) companies manufacturing component parts for both manufacture and repair purposes;
- (b) companies purchasing component parts which they assemble into watches; and
- (c) companies producing brand-named watches who also manufacture some of their own component parts for both manufacture and repair purposes.

23. Beginning in or about 1924 and continuing thereafter up to the date of filing of this complaint the Swiss watch industry has been organized along regional and functional lines into a series of organizations as follows:

FH: Comprises six regional organizations consisting of more than 450 manufacturers and assemblers of watches.

Ebauches SA: Owns the stock of most companies producing ebauches for manufacture and repair purposes.

UBAH: Comprises regional organizations consisting of more than 500 firms which manufacture watch components and repair parts other than ebauches. Substantially all of the firms comprising the Swiss watch industry are members of one of the above-described organizations. In addition to the foregoing, the following organizations established in Switzerland play an important role in the regulation of the Swiss watch industry:

Superholding: A private corporation owned by the watch industry organizations, the Swiss banks and the Swiss Government, Superholding controls various manufacturers of component parts and its primary function is to control the production of watches in Switzerland.

Swiss Watch Chamber: (*Chambre Suisse de l'Horlogerie*): Membership consists of delegates appointed by the member organizations of FH, Ebauches SA, and UBAH which have sole voting rights although other Swiss watch industry associations have the right to appoint representatives to participate in deliberations. An important function of the Swiss Watch Chamber is to supervise exports of the Swiss Watch industry.

Although the organizations described above thoroughly regulate the Swiss watch industry, the restraints charged hereinafter relate solely to United States importation, exportation, and domestic trade in jeweled watches, component parts, and repair parts thereof.

24. On or about April 1, 1931, FH, Ebauches SA and UBAH, acting on behalf of themselves and their members, executed an agreement, hereinafter referred to as the Collective Convention, for the comprehensive regulation of the production, sale and export of watches, component parts and repair parts of the Swiss watch industry. Said Collective Convention is presently in effect and, as amended and modified from April 1, 1931, up to the date of the filing of this complaint, contains, among others, the following terms and provisions:

(a) all Swiss watch firms signatories to the Collective Convention must deal only with each other in the purchase and sale of ebauches and other component parts and not resell component parts to others, except that non-members of foreign firms who had purchased such components prior to 1931 may continue purchases from members on condition that they observe the Collective Convention terms and do not resell such components;

(b) watches and repair parts produced in Switzerland may be sold to any person in the United States subject, however, to the following conditions: (1) specified types of watches must be exported as completed watches and not as movements; (2) movements cannot be exported unless accompanied by both dial and hands; (3) repair parts must be used only for repair and not for other purposes, and can only be sold by defendants FH and Ebauches SA and by coconspirator UBAH for the repair or replacement of products manufactured by members of said organizations;

(c) all Swiss watch firms signatories to the Collective Convention and their foreign branches, parents or other affiliates agree not to establish manufacturing facilities outside Switzerland and not to purchase capital in or give any assistance in the form of loans, technical know-how, machinery, or advice to any horological firm located outside of Switzerland;

(d) prices and terms and conditions of sale are to be fixed by agreement and the Collective Convention signatories agree not to deviate from the prices, terms and conditions thus established;

(e) defendants FH and Ebauches SA and coconspirator UBAH are responsible for the enforcement of the provisions of said Collective Convention and are empowered to suspend purchases from or sales to any firm charged with breach thereof or to cancel the Collective Convention membership of any firm in the event of violation of the Collective Convention by the member, its foreign branch, parent or affiliate.

VII. OFFENSES CHARGED

25. Beginning on or about April 1, 1931 and continuing thereafter up to and including the date of the filing of this complaint, the defendants and the co-conspirators named herein have been and are now engaged in an unlawful combination and conspiracy in unreasonable restraint of the aforesaid interstate and foreign trade and commerce of the United States in jeweled watches, component parts and repair parts thereof, in violation of Section 1 of the Sherman Act and Section 73 of the Wilson Tariff Act. Such combination and conspiracy will continue unless the relief hereinafter prayed for in this complaint is granted.

26. The aforesaid combination and conspiracy has consisted of a continuing agreement and concert of action among the defendants and the coconspirators, the substantial terms of which have been that:

(a) manufacture of watches and component parts within the United States be prevented, discontinued, or curtailed;

(b) importation of component parts from Switzerland into the United States be eliminated except under special circumstances, as hereinafter described;

(c) importation of watches and component parts into the United States from all countries other than Switzerland be eliminated;

(d) exportation of American produced component parts from the United States to Switzerland and reexportation of Swiss produced component parts from the United States to the rest of the world be eliminated;

(e) selected countries within the Western Hemisphere be allocated as foreign markets to which imported Swiss watches may be exported from the United States, and exportation of such watches from the United States to other parts of the Western Hemisphere and to the rest of the world be eliminated;

(f) minimum prices for watches and maximum prices for repair parts be established, policed, and enforced for such products imported into and sold within the United States;

(g) methods of distribution in the United States of watches, component parts, and repair parts imported from Switzerland be regulated;

(h) violations of terms of the aforesaid conspiracy be discouraged and punished by fines, blacklisting, and boycotting.

27. Pursuant to the aforesaid combination, conspiracy and concert of action, and in furtherance thereof, defendants and the coconspirators, among other things, have entered into, adhered to, or effectuated the Collective Convention described in paragraph 24 above and have done the acts and carried into execution the agreements complained of in paragraphs 28 to 39 hereinafter.

28. The Collective Convention described in paragraph 24 above has unreasonably restrained and is unreasonably restraining the aforesaid trade and commerce in jeweled watches, component parts and repair parts thereof, and each of the defendants either (1) has signed said Collective Convention, or (2) has caused its branches or subsidiaries to sign said Collective Convention, or (3) is adhering to the terms of said Collective Convention, or (4) is engaged in the United States in the effectuation or enforcement of some or all of the terms of said Collective Convention.

29. Defendants Benrus, Wittnauer, Longines NY, Eterna SA, Eterna NY, Diehelm NY, Rolex SA, Rolex NY, Stern NY, Rodana NY, Cyma NY, and Concord NY have agreed to cease manufacturing watches and component parts within the United States, or to refrain from establishing watch and component parts manufacturing facilities within the United States, or to refrain from assisting any companies engaged in the watch business, in accordance with the terms of the following written agreements:

(a) on or about January 1, 1945, defendant Benrus agreed with coconspirator Superholding to abandon its manufacture of watches and component parts within the United States and so to liquidate its manufacturing plant in the United States as to prevent any other existing or potential manufacturer from using it for horological manufacturing purposes;

(b) defendants Wittnauer, Longines NY, Eterna SA, Eterna NY, Diethelm NY, Rolex NY, Rolex SA, Cyma NY, Stern NY, Rodana NY, and Concord NY, by signing the Collective Convention or undertaking to be bound by its restrictive provisions as described in paragraph 24 above, have agreed to refrain from establishing watch and component parts manufacturing facilities within the United States, and to refrain from providing any company engaged in the watch business in the United States or elsewhere with loans, capital investments, know-how, technical assistance, or machinery.

30. Defendants Gruen Ohio and Bulova have agreed to restrict and curtail their manufacture of watches and component parts within the United States; to refrain from reselling component parts to other existing or potential manufacturers within the United States; and to refrain from importing watches and component parts into the United States from all countries other than Switzerland in accordance with the terms of the following written agreements:

(a) on or about January 11, 1941, defendants Gruen Ohio and Gruen SA agreed with defendants FH, Ebauches SA, and coconspirator UBAH that Gruen Ohio would (1) import a minimum of 300,000 watches annually from Switzerland to the United States, (2) restrict manufacture of watches and component parts within the United States in kind to specified types of movements and component parts and in volume to an annual maximum of 75,000 watches, (3) refrain from importing component parts into the United States from all countries other than Switzerland, (4) refrain from importing component parts from Switzerland into the United States in quantities in excess of those actually required in connection with the limited horological manufacture in which it was permitted to engage in the United States, and (5) submit samples of its horological production to FH from time to time and permit Lybrand, Ross Bros. & Montgomery, New York City accountants, to audit its books periodically and thereby police its compliance with the aforesaid restrictions.

At the time of the said agreement Gruen Ohio did not manufacture in the United States but in or about 1948 it began such manufacturing operations within the United States within the limits imposed by the restrictive requirements agreed upon as aforesaid.

(b) on or about October 7, 1948, defendant Bulova agreed with defendants FH and Ebauches SA and coconspirator UBAH that Bulova would (1) restrict both the nature and the volume of its manufacture of watches and component parts within the United States, (2) refrain from importing component parts into the United States from all countries other than Switzerland, (3) refrain from importing component parts from Switzerland into the United States in quantities in excess of those actually required in connection with the limited manufacture of watches and component parts in which it was to be permitted to engage in the United States, (4) refrain from reselling component parts to other existing or potential United States manufacturers, and (5) permit Lybrand, Ross Bros. & Montgomery, New York City accountants, to audit its books periodically and thereby police its compliance with the aforesaid restrictions.

The said agreement also provided, in the event of its breach by Bulova's Bienne plant that the said defendant could be penalized by cancellation of its business relationships with the other signatories of the Collective Convention described in paragraph 24 herein.

31. Defendants Eterna NY, Longines NY, Concord NY, Diethelm NY, Wyler NY, Cyma NY, Morris NY, Movado NY, Graef NY, Stern NY, Rolex NY, and Rodana NY (hereinafter referred to as "defendant United States importers"), have entered into allocation of market agreements and other unlawful agreements restraining their rights to reexport watches from the United States, or to deal freely in all brands of watches within the United States, and restricting the importation of watches and component parts into the United States from all countries other than Switzerland. Said agreements, entered into by the defendant United States importers with their respective Swiss coconspirator and defendant principals (hereinafter referred to as "Swiss manufacturer principals"), gave exclusive distribution rights for the watches and component parts manufactured by the Swiss manufacturer principals to the respective defendant United States importers and provided that (a) watches imported by said defendant United States importers into the United States would not be reexported except to designated countries in the Western Hemisphere, (b) the said defendant United States importers would not deal in watches competitive with the brand-named watches of their respective Swiss manufacturer principals without consent of the said principals, and (2) the said Swiss manufacturer principals

would take all steps necessary to prevent the importation of their brand-named watches into the United States from all countries other than Switzerland.

32. Defendants FH, Ebauches SA, Bulova, Gruen SA, Wittnauer, Rolex SA, Eterna SA, Benrus, and the coconspirator Swiss manufacturers named herein have agreed among themselves and with other coconspirators that (a) watches and component parts shall be sold for export from Switzerland to the United States only at cost which shall be determined in accordance with a prescribed formula plus 25 percent and only under fixed terms and conditions of payment, and (b) watches, when sold without cases for export from Switzerland to the United States, shall be sold only at cost determined as hereinbefore stated plus 30 percent and only under fixed terms and conditions of payment.

33. Defendants FH, Ebauches SA, Bulova, Gruen Ohio, Concord NY, Eterna NY, Diethelm NY, Benrus, Longines NY, Rolex NY, Rodana NY, Stern NY, and Cyma NY have agreed among themselves and with coconspirators (a) that watches and component parts shall not be purchased in Switzerland by said defendants and others at prices below those established as alleged in paragraph 32 above, and (b) that watches and component parts shall not be sold by said defendants and others in the United States at prices lower than agreed upon minimum prices and shall not be offered for sale in the United States subject to any guarantees other than those approved by FH.

34. Defendants FH, Ebauches SA, Watchmakers of Switzerland NY, Foote, Bulova, Gruen Ohio, Concord NY, Etern NY, Diethelm NY, Benrus, Longines NY, and AWA have agreed among themselves and with other coconspirators that all persons in the United States who do not adhere to the prices established, as hereinbefore alleged in paragraphs 32 and 33, shall be reported to defendants FH and Ebauches SA in order that such reprisal action as is deemed appropriate may be taken.

35. Defendants FH, Ebauches SA, Bulova, Foote, Gruen Ohio, Gruen SA, Benrus, Rolex SA, Rolex NY, Stern NY, Cyma NY, Concord NY, Eterna SA, Eterna NY, Diethelm NY, Radona NY, Longines NY, and AWA have agreed among themselves and with other coconspirators that:

(a) no watches imported into the United States from Switzerland shall be sold in the United States on consignment;

(b) commercial disputes between importers in the United States and their Swiss supplies shall be arbitrated by FH and FH may impose fines on such importers for deviations from terms and conditions of sale agreed upon as aforesaid.

36. Defendants FH, Ebauches SA, Watchmakers of Switzerland NY, Bulova, Gruen Ohio, Gruen SA, Concord NY, Rolex SA, Rolex NY, Stern NY, Eterna NY, Eterna SA, Diethelm NY, Longines NY, Rodana NY, Cyma NY and coconspirator Swiss manufacturers have agreed among themselves and with other coconspirators to boycott or refuse to sell watch and component parts to any person in the United States who does not adhere to the restrictive practices hereinbefore alleged in paragraphs 32, 33, and 35 above, and to blacklist any such person.

37. Defendant FH, by agreement among its members has, and is, excluding United States watch manufacturers from the business of exporting American-produced component parts from the United States to Switzerland and reexporting Swiss produced component parts from the United States to the rest of the world.

38. Defendants FH, Watchmakers of Switzerland NY, Ebauches SA, Foote, and the coconspirator repair parts importers named herein, have agreed:

(a) to exclude all persons other than the said coconspirator repair parts importers from the business of distributing within the United States watch repair parts manufactured by or subject to the control of defendant Ebauches SA and its affiliates; and

(b) to fix and maintain the prices at which such repair parts shall be sold by the said coconspirator repair parts importers within the United States.

39. Defendants Watchmakers of Switzerland NY, Foote, and AWA have agreed with defendants FH and Ebauches SA to aid and have in fact aided defendants FH and Ebauches SA in enforcement of the illegal provisions of the Collective Convention described above in the United States and, particularly, in enforcement of price and other restrictions in the United States, by, *inter alia*, reporting to defendants FH and Ebauches SA evidences in the United States of violations of various of the illegal agreements and Collective Convention terms described above.

VIII. EFFECTS OF THE COMBINATION AND CONSPIRACY

40. The aforesaid combination and conspiracy and the agreements in pursuance thereto have had, among others, the effect of:

(a) retarding and obstructing the growth of the United States watch manufacturing industry, the continued expansion of which is important to the national defense and economic development of the United States;

(b) diminishing the exportation of watches and component parts from the United States as a result of the agreed delimitations of the foreign markets to which United States exporters are permitted to ship;

(c) causing the defendant United States watch manufacturers to continue to engage in such manufacture solely at the sufferance of defendant FH and the other Swiss defendants and coconspirators, and hindering or excluding all other persons and companies from entering into or remaining in the business of manufacturing watches and component parts within the United States;

(d) permitting the defendant FH and the other Swiss defendants and coconspirators to perfect and maintain control over the importation of watches, component parts and repair parts into the United States and the reexportation of such watches and component parts from the United States;

(e) interfering with and suppressing the rights of United States manufacturer-importers to purchase watches and component parts from foreign sources of their own selection;

(f) depriving United States importers of the economic advantage of purchasing watches and component parts imported from Switzerland at prices determined by free and open competition;

(g) maintaining the prices of Swiss watches in the United States at arbitrary and noncompetitive levels;

(h) securing to the coconspirator repair parts importers a monopoly within the United States of the business of distributing watch repair parts manufactured by or subject to the control of defendant Ebauches SA and its affiliates and excluding other persons and companies from the said business within the United States;

(i) restraining interstate and foreign trade and commerce in watches, component and repair parts imported into, exported from, and sold within the United States.

PRAYER

WHEREFORE, PLAINTIFF PRAYS:

1. That the Court adjudge and decree that the defendants and the coconspirators have combined and conspired unreasonably to restrain interstate and foreign trade and commerce in watches, component parts and repair parts in violation of Section 1 of the Sherman Act and Section 73 of the Wilson Tariff Act.

2. That so much of each of the agreements between and among defendants and the coconspirators described herein as has unreasonably restrained the import, export or domestic trade and commerce of the United States be adjudged in violation of Section 1 of the Sherman Act and Section 73 of the Wilson Tariff Act and pro tanto be declared invalid.

3. That the defendants and each of them and their officers, directors, agents, representatives, and all persons and corporations acting or claiming to act on behalf of them be perpetually enjoined from participating in, maintaining, or carrying out the combination, conspiracy and agreements described herein, or from reviving or renewing the same, or from granting or claiming any rights giving any effect thereto.

4. That the defendants and each of them and their officers, directors, agents, representatives, successors or assigns, and all persons and corporations acting or claiming to act on behalf of them be perpetually enjoined from importing into the United States any brand-named Swiss watches subject in their manufacture, sale or distribution to any or all of the unlawful restrictions herein described.

5. That the Court schedule a separate hearing on questions of relief and consider at such hearing specific plans to be proposed by the plaintiff, whereunder defendants will be required to take such steps as are necessary to sever themselves from relationships with the Swiss watch industry insofar as such relationships unreasonably restrain the import, export or domestic trade and

commerce of the United States, and to bar the importation into the United States of watches, component parts and repair parts subject to the illegal restrictions herein described.

6. That the plaintiff have such other, further, and different relief as the nature of the case may require and the Court may deem just and proper.

7. That plaintiff recover the costs of this suit.

8. That pursuant to Section 5 of the Sherman Act, and Section 75 of the Wilson Tariff Act, plaintiff be granted leave as the ends of justice may require during the pendency of this action to summon before this Court as parties defendants herein other coconspirators or other persons who may have entered into the conspiracy or agreements relating to watches, component parts and repair parts containing some or all of the restrictive terms or provisions described herein.

Dated: New York, New York.

_____, 1954.

Herbert Brownell, Jr., Attorney General; Stanley N. Barnes, Assistant Attorney General; Marcus A. Hollabaugh, Baddia J. Rashid, Richard B. O'Donnell, Special Assistants to the Attorney General; J. Edward Lumbard, United States Attorney; Malcolm A. Hoffman, Special Assistant to the Attorney General; Mary Gardner Jones, Trial Attorney; Samuel B. Prezis, Trial Attorney; Bernard A. Friedman, Trial Attorney; George J. Solleder, Jr., Trial Attorney.

The following letter was received after the subcommittee had issued its report, but is considered of sufficient interest to be included in the record:

SOCIÉTÉ GÉNÉRALE DE L'HORLOGERIE SUISSE S. A. ASUAG,
Bienne [Switzerland], July 13, 1956.

HON. RICHARD BOLLING,

*Chairman, Subcommittee on Foreign Economic Policy,
Joint Committee on the Economic Report,*

United States House of Representatives, Washington, D. C.

DEAR CONGRESSMAN BOLLING: I am availing myself of the privilege of writing to you as president of the coordination committee which has been entrusted with the interests of the watch industry of Switzerland in the United States. We have been following with careful attention the proceedings during the open hearings of your committee from June 4 to 7. During the interval we have had the opportunity of studying the minutes of the hearings and to find out that some witnesses made statements which we consider erroneous and misleading with regard to the Swiss watch industry, its organization, its practices, and its marketing methods. The purpose of our letter to you is to comment on some of these statements which have a direct bearing on the Swiss watch industry and which are of great importance.

As a general preface to my remarks I would like to stress the critical position of the Swiss watch industry to the economy of Switzerland. Our country is not in as fortunate a position as the United States, and we have very few leading industries upon which to rely. On these few industries falls the burden of earning the exchange with which to purchase the raw materials, food, and agricultural products which we cannot produce on our own limited soil. It is recognized that chief among these key industries is the watch industry, which gives employment and a livelihood to more than 10 percent of Swiss labor; and whose products earn nearly half of the exchange income which Switzerland obtains by sales of commodities in foreign trade. The relation of the Swiss watch industry to the national economy, and the effect of national law upon the industry, have been a matter of general knowledge to all, and especially to those supervising the trade program between our two countries.

From the tenor of much of the testimony given by witnesses appearing for the American companies, one would gather that the entire trade associations' system of the Swiss watch industry was inspired solely by a desire on our part to defy antitrust laws of the United States. Or, that there was a concerted program launched by the Swiss watch industry for the purpose of systematically destroying the position in the United States market of the American watch-makers.

With respect to that contention I wish to point out that the conventions (bylaws) of our industry, unlike trade association bylaws as known in the

United States, are a joint product of our national law and the measures taken by the industry itself on a democratic basis to promote and defend its trade position; these measures are primarily intended to be effective within the Swiss territory. The Swiss watch industry does business with all of the countries of the world, and our laws inevitably differ on some points with the laws of other countries. But it has never been the intention of our Government and the associations concerned to violate any laws of any countries, particularly relating to business practices. The Swiss watch industry is composed of more than 2,000 member firms who democratically govern the associations; this requires a common policy to assure a sound evolution to the benefit of all. The said conventions are a product of much deliberation, of slow growth, of trial and error on the part of an industry seeking to protect itself against economic fluctuations. After the disastrous world crisis and its aftermath, our industry made a great effort to preserve a vital source of national wealth from the destructive influences of cycles in world economy. We recognize that our approach to the problem may be construed by those not familiar with the history of our industry to be at variance with certain practices in your country. However, we feel that under closer scrutiny there may have been many results of the trade practices followed by us which would win the approval of most American economists. One clear proof of the value of our system is the fact that overconcentration could be avoided and that it has encouraged the growth and expansion of an industry now numbering more than 2,000 individual enterprises.

This economic policy has not prevented the Swiss watch industry as a whole to take into account the interests of the American watch industry. It is well known that the Bulova Watch Co. began business as an importer in the United States. That, without the unique assistance of the Swiss industry, it is evident that Bulova Watch Co. would not today be one of the major watch companies, not only in the United States but in the world. It is, of course, due to the extensive use of Swiss machinery, Swiss techniques, Swiss patents, and Swiss watch parts, that Bulova Watch Co.'s watchmaking facilities have now been put at the disposal of the consumer economy of the United States.

Similarly we mention the assistance, in terms of machinery and techniques, tendered to the Waltham Watch Co. in its effort to rehabilitate its business.

Factually, we can cite also additional offers of assistance which were made within the past year to both Elgin National Watch Co. and Hamilton Watch Co. by representatives of the Swiss watch industry. Our people, cognizant of the fact that these entities of the United States watch industry were, in some respects, in need of modernization of machinery and production practices, offered to supply needed devices and developments from Switzerland. The offers were rejected.

The charge of systematic dumping has been leveled for many years at the Swiss industry by its American critics. Protectionists have attempted to prove that a strategy based upon sales below cost of Swiss movements was aimed at forcing the United States industry out of this market.

It was a source of interest, therefore, for us to note that Mr. Arde Bulova, one of the witnesses, admitted during the course of cross-examination that it would be impossible for Swiss manufacturers to practice dumping operations under the conventions; and that, in fact, the conventions and trade practices operated, on the contrary, to hold the prices of Swiss exports at a fair and profitable level. This should serve to discourage any further promotion of the dumping story.

Considerable issue also was made of the fact that our industry has for years sponsored an advertising program to advance and protect our trade interests, and unfavorable inferences were drawn. And your committee was told that over \$3 million a year is spent in this fashion. In fact, of the funds subscribed by the industry for trade promotion and advertising purposes only a proportion equivalent to the sales in the United States is expended in the United States campaign, or about one-third of the amount stated.

This worldwide program of advertising began and continues in response to the demands of United States retail jewelers and other distributors who have sought this type of assistance from the Swiss industry in helping them to market our product in the United States and other countries. It is similar to advertising programs undertaken by trade associations in the United States—the steel, automobile, electric power, railroad and other industries—to name a few. It does not represent a radical departure from custom for foreign industries, either, since the foreign producers of coffee, tea, and other commodities are accustomed to subsidize such advertising programs, as are industries of Great

Britain, France, Germany, Holland, and other nations in friendly trade with the United States.

Furthermore, we wish to state that at its onset the advertising campaign of the watchmakers of Switzerland stressed the watch as such regardless of its origin. This shows that we had no hostile intention toward the American watch manufacturers, since we considered the United States market big enough for everyone. Even if later the attitude of the American watch manufacturers led us to mention the Swiss watch, the aim of our advertising campaign was never to hamper the American manufacturers. We trust that your committee will take cognizance of the facts adduced here to help offset the implication that our advertising represents a sinister plot against the American companies.

Dating from 1936 forward, we note that there has been a progressive trend in watch-production output and sales by the American companies, and, discounting year-to-year variations, that they have consistently improved the volume of production and sales. Similarly, with the exception of the Waltham Co., whose difficulties can properly be blamed on internal-management problems, the American watch companies have been able to increase their assets and plant and net value in a steady, continuous process of growth.

From the broader view of total American national interest, we believe that the watch exports of our industry have been very influential in building an unprecedentedly high volume of United States-Swiss trade. It must be recalled that in 1936 the total of American exports to Switzerland were less than \$10 million, and that in recent years this volume has grown to the point to which exports of United States products to Switzerland have varied between \$150 million and \$190 million annually. Nor should it be overlooked that the trade between Switzerland and the United States has resulted almost invariably in a surplus in favor of the United States, now totaling well over one-half billion dollars. Although we would not pretend that improved watch sales have been the only factor in producing such excellent trade results, it is apparent that this watch trade has been one of the most important elements in improving trade between our countries.

We were also particularly interested in certain evidence and testimony offered by the spokesmen for the United States clock and pin-lever manufacturers.

It was apparent from this information that one of the unexpected effects of the 1954 tariff decision has been to increase measurably the pressure of competition of manufacturers in the pin-lever segment of the American watch market. We have been aware of the fact that there has been considerable diversion away from the better grade, more reliable jewel-lever watch exports and to the less-expensive pin-lever or clock-type watches.

That this result was unexpected by American officials might be attributed to an unawareness of the nature of United States markets for watches. We say "markets" advisedly because we believe that there exists a number of levels at which good jewel-lever movements may be sold in the United States. In only one of these levels can our jewel-lever product be considered truly competitive with that of the three American jewel-lever companies.

It is apparent, also, that in lower priced levels, where the three American companies have never sought to compete, there was a consistent and firm consumer demand for reliable jewel-lever timepieces, which was filled mainly by Swiss exports to the United States. With the increase of tariff there was a diversion of this demand to lower priced and less reliable products, since a market cannot be ruled out of existence by the simple act of raising tariffs.

In closing, I would like to take the liberty of summarizing certain aspects of the watch controversy, as it is seen from Switzerland.

First, we lay claim to being as thoroughly conversant with the techniques of modern watch manufacturing as our rivals in the United States, and for this reason we find it difficult to accept their contention that a watch industry can be said to occupy a completely special position in the production scheme of any country, totally apart and separate from all the other precision machining and assembly industries in the country. By experience, we have found that there is a certain gradation in the level of skills and special techniques employed throughout the entire group of precision industries in Switzerland. And that, in many cases, the skills of the watch industry will overlap with the special skills of other precision manufacturers. Experience has taught us, therefore, to be skeptical of the idea that we are unique, or that we produce anything which cannot be duplicated by others of our machine industries. Our people are therefore strongly inclined to believe that the same is true of the relation between the American

watch industries, and all the other elements of the precision machining and assembly industries of the United States.

Second, it has not been thought desirable or necessary to use our watch industry in the production or assembly of war materials. Even in the case in which industries here are cooperating with the United States Government in production of components for the guided-missile program, their production problem has been kept totally separate from the watch industry. This factor, of course, has raised considerable speculation here as to the actual reasons why the watch industry of the United States seems to have become so deeply involved in the production of defense materials.

Third, we are constrained to wonder whether the intensive programs of diversification, in which each of the three American watch companies are now engaged, will ultimately help or hinder them in their main task, which is the efficient production of watches at competitive prices. Programs for the production of electronic and electrical products; for transistors, radiofrequency crystals, clock radios, and shavers are now in operation at one or another of the American watch companies. All of these are specific production tasks, requiring the diversion of skilled personnel, management, and capital away from the job of manufacturing watches, and can fairly be presumed to be placing considerable strain on the limited resources of the companies in the American jewel-lever watch industry.

I mention this because the procedure evidently being followed by the American watch companies is not current in our industry, where we have concentrated on the production of watches. And where we have obtained our reductions in costs and overhead by decentralizing the production of the industry, and by investing money and effort in the modernization of production techniques.

I trust that you will accept the information offered in the letter in the helpful spirit in which it is intended. I close with the fullest assurance of our continued regard for yourself and for the esteemed members of your committee.

Respectfully yours,

P. RENGGLI,

Chairman, the Coordination Committee of the Swiss Watch Industry.

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- Weeks, Sinclair, Secretary of Commerce, Washington, D. C.
- Weitzen, Eduard, president, Gruen Watch Co., Cincinnati, Ohio.
- Wilson, Charles E., Secretary of Defense, Washington, D. C.

(Whereupon the hearing was adjourned.)

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