ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1975

HEARINGS

BEFORE THE

SUBCOMMITTEE ON PRIORITIES AND ECONOMY IN GOVERNMENT

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FOURTH CONGRESS

FIRST SESSION

EXECUTIVE SESSIONS

JUNE 18 AND JULY 21, 1975

PART 1

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ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1975

WEDNESDAY, JUNE 18, 1975

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON PRIORITIES AND
ECONOMY IN GOVERNMENT OF THE
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 2:20 p.m., in room 5302, Dirksen Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire and Representative Brown of Michigan.

Also present: Richard F. Kaufman, general counsel.

Chairman PROXMIRE. Mr. Colby, we are grateful to you and delighted that you are able to come down. You have been most helpful to us in the past and your analysis and briefing is one of the highlights of the year for our Joint Economic Committee. You have given us information that has been most helpful.

We are also aware of how extremely busy your schedule is. As a matter of fact, your being able to make time for us is certainly most helpful to us. We understand why you have to make this session a secret one. It is unfortunate, but it is of necessity. We hope that we can have your remarks declassified, sanitized as soon as possible, because the nature of this committee, they are only useful to the extent that we can make the information public.

Mr. COLBY. We certainly will do that rapidly.

Chairman PROXMIRE. For the other Members in Congress as a whole.

I understand that you have a prepared statement. If you could make it available to Congressman Brown and myself, we would appreciate it if you have copies so we can follow you.

All right, sir, go right ahead.

STATEMENT OF HON. WILLIAM E. COLBY, DIRECTOR OF CENTRAL INTELLIGENCE, CENTRAL INTELLIGENCE AGENCY, ACCOMPANIED BY EDWARD W. PROCTOR, DEPUTY DIRECTOR OF INTELLIGENCE; RICHARD A. BUFFUM, NATIONAL INTELLIGENCE OFFICER; DONALD F. BURTON, OFFICE OF STRATEGIC RESEARCH; JAMES H. NOREN, OFFICE OF ECONOMIC RESEARCH; ROBERT M. FIELD, III, OFFICE OF ECONOMIC RESEARCH; AND GEORGE L. CARY, LEGISLATIVE COUNSEL

Mr. COLBY. Thank you, Mr. Chairman.

I am accompanied today, Mr. Chairman, by Mr. Edward Proctor, who is our Deputy Director of Intelligence in charge of the basic analytical work of the Agency; Mr. Richard Buffum who is on our National Intelligence Officer staff who is helping out today; Mr. Donald Burton of the Office of Strategic Research; Mr. James Noren of the Office of Economic Research; Mr. Robert Field of the Office of Economic Research; and Mr. George Cary, our Legislative Counsel.

As you recall, in April of last year, I discussed for the subcommittee the economies of the Soviet Union and the People's Republic of China, making comparisons with the U.S. economy to help put the performance of the other two powers into perspective.

In the year since my previous appearance, we have made a record amount of our economic analysis available on an unclassified basis to scholars and government components outside the intelligence community. CIA analysts, as you know, have contributed substantially to the products sponsored by this committee. This is a continuation of a practice instituted some 15 years ago.

Today, I will be dealing with the same general problems of how the U.S.S.R. and China allocate their economic resources.

I have a statement which will take about an hour, and of course, I will be glad to respond to your questions.

PART I: THE SOVIET ECONOMY

First and foremost, with respect to the Soviet economy, Mr. Chairman, I would emphasize that it is a "command economy" where basic decisions are made by central administrative fiat rather than in the market place.

The Politburo of the Communist Party, as the top decisionmaking body, decides basic economic allocation issues such as the adoption of a large, new agricultural program.

From these guidelines, the Council of Ministers, the highest government body, sets the output targets of major commodities, divides up resources, and oversees plan fulfillment.

Under the Council of Ministers are many organizations to implement economic policies. This includes the State Planning Committee (Gosplan), more than 50 functional economic ministries, such as ferrous metallurgy, foreign trade, and agriculture, and a host of state committees concerned with finance, prices, supply, and the like.

Gosplan, as the highest ranking economic planning organization, is responsible for drawing up detailed annual and 5-year plans, and monitoring their implementation, Gosplan employs about 50,000 people, with offices in each of the 15 union republics.

At the operational level, state-owned industrial facilities and collective farms endeavor to fulfill their own production, technical, and financial plans. The main success indicator is the production target.

All this apparatus makes Soviet planning a slow, cumbersome process, made more difficult by the ever-increasing complexity of the economy. Attempts are underway to improve planning methods.

LONG-RANGE PLANNING

Long-range planning is being given a larger role, including a 15-year plan for 1976–90. This is in keeping with Premier Kosygin's observation that contemporary developments in science and technology require a longer time horizon.

Efforts to devise more scientific plans include long-term forecasts of scientific and technological developments, and the use of modern mathematical and economic models.

The need to raise productivity has spurred attempts to plan in more detail the programs for technological progress and for the improvement of product quality.

Increased computerization is supposed to allow a more automated management of planning.

PRICES

Prices in the U.S.S.R., with the exception of collective farm market prices, are fixed by central authorities rather than by the interaction of supply and demand. Generally based on industrywide average costs, they do not indicate enterprise performance or provide clues to resource allocation as in a market economy. Rather, they serve as a means of accounting, control, and income distribution.

Soviet pricing policies do not permit the consumer, in most cases, to affect the supply of and the demand for goods. This system produces large inventories of unsold goods on the one hand, and long queues for certain scarce goods on the other.

Consumer prices, with the exception of a few luxury items, have been stable over the last 20 years.

For the producer, the failure of prices to reflect scarcity leads to the overuse of some goods, underuse of others, and in certain cases, to deals outside official channels. The last general industrial wholesale price revision was in 1967.

Soviet economic literature abounds with price reform proposals. Most Soviet economists feel that the present system is illogical, but they cannot agree on reforms—mainly because of differing views of the role of prices. Some take the Marxist view that prices should be basically cost oriented, while others advocate prices determined by supply and demand.

GROWTH

The planning system, despite its inflexibility and crudeness, has been effective in mobilizing the country's resources for growth. A large percentage of output has gone to investment, and a large work force has been extracted out of the population. The Soviet economy has grown since 1950 from about one-third to over one-half the size of the U.S. economy.

Before going into the details of the 1974 performance, and prospects for this year, a general appraisal of the Soviet economy is that Moscow feels more secure about its position in the international economy than ever before. This feeling shows internally by less self-criticism and less agitation for basic economic reform, and externally by a tougher stance in trade bargaining sessions with the West.

Soviet economic growth compares favorably with that of the recession-hit West.

Because of its centrally controlled economy and its economic self-sufficiency, the U.S.S.R. has been shielded from the recession and double-digit inflation plaguing the West.

INFLATION

Inflation in the West affects the prices of only a small fraction of the machinery introduced into Soviet industry, and grain going to the consumer. Internal Soviet inflation is of the creeping variety, reflected in the disappearance of less expensive product lines and growing savings deposits, a result of wage increases outstripping the availability of consumer goods. All this has little impact on internal Soviet budgetary and economic affairs.

UNEMPLOYMENT

Unemployment due to insufficient aggregate demand is not a Soviet problem. In fact, Soviet economists are concerned about a manpower shortage and its effects on economic growth. The shortage is due to low birth rates, slow growth in labor productivity, a decline in rural-urban migration, and longer periods of education. What unemployment does exist is not serious enough to require major policy initiatives.

Thanks to an export surplus in oil and raw materials, the Soviet balance of payments has benefited from high world market prices.

LOW EFFICIENCY

Nevertheless, there are still basic problems of low efficiency and an inability to apply new technology quickly, or broadly, and these are keeping the Russians from readily translating their temporary advantages in dealing with the West into remedies for their long-term economic ills.

SOVIET 1974 PERFORMANCE: GNP

Turning now to the 1974 performance, the Soviet gross national product rose by 3.7 percent as illustrated in figure 1. This was only about one-half the 1973 growth rate, but is still better than in many Western economies where output declined. In fact, the absolute difference in GNP between the United States and the U.S.S.R. declined by a record $52 billion.

AGRICULTURE

Agricultural output dipped sharply because of poor weather as illustrated in figure 2. Fluctuations in farm production have a large impact on economic growth, because this sector represents almost one-fourth of the GNP.

[Figs. 1 and 2 follow:]

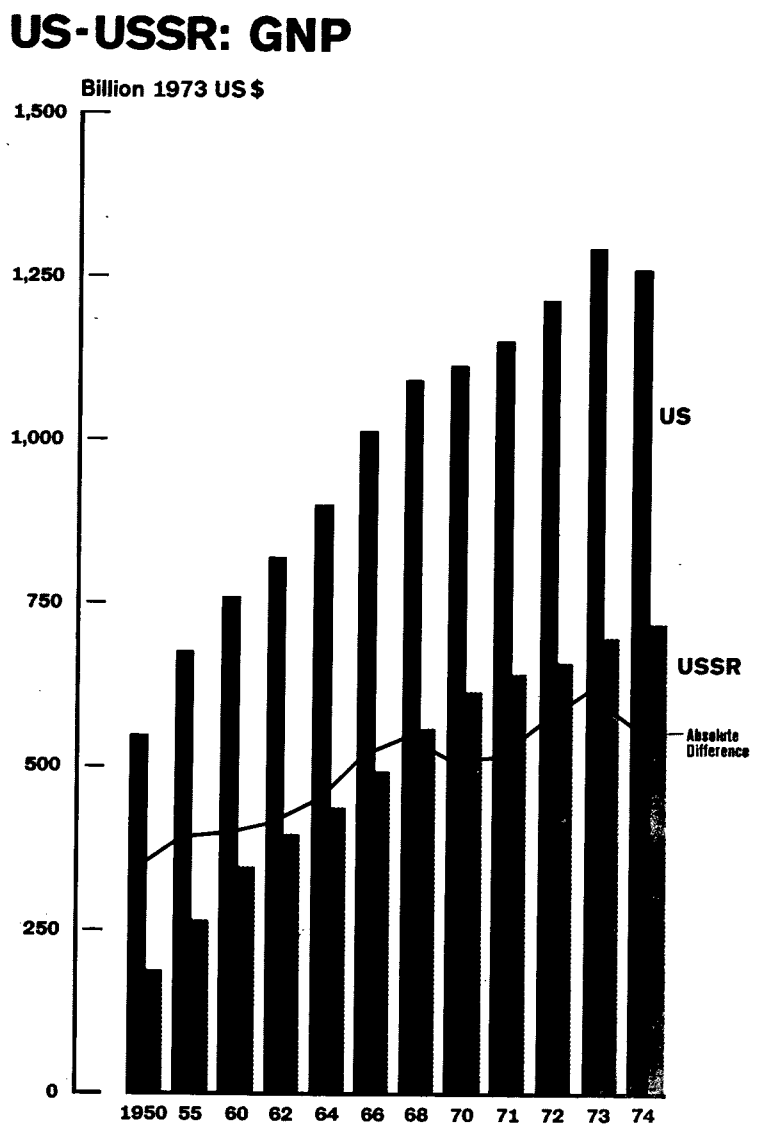

FIGURE 1

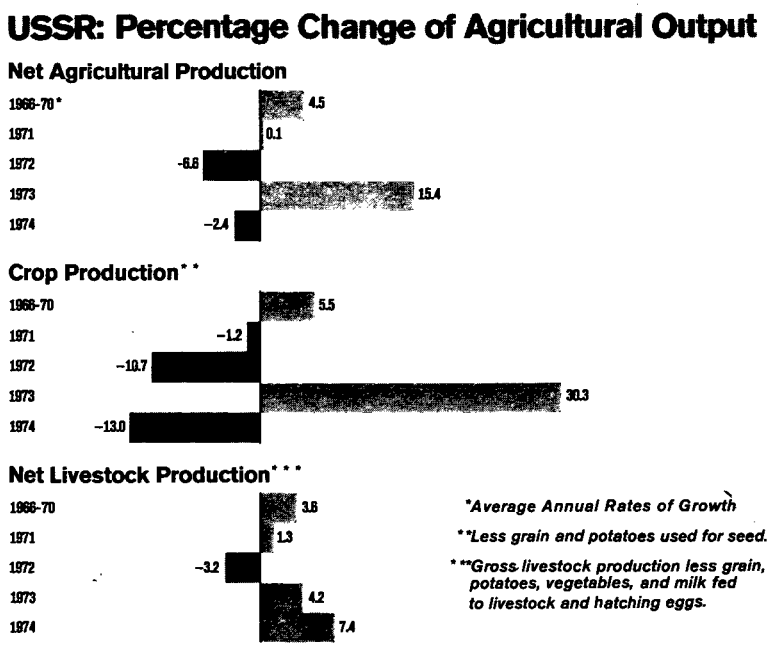

FIGURE 2

Mr. COLBY. Last year's farm output was far below the record year of 1973, but it was still the second largest in Soviet history. Crop production dropped 13 percent while livestock output, bolstered by good feed supplies from the 1973 crop, grew more than 7 percent.

Grain output was the second largest ever, although below 1973 output and the 1974 goal. We estimate the crop was short of domestic requirements and export commitments by 5–10 million tons. The Soviet chose to buy almost 7 million tons of foreign grain, 2½ million from the United States, rather than draw down stocks.

The livestock program, closely associated with Brezhnev, continued to score impressive gains last year. These were reflected in the increasing size of livestock herds, higher slaughter weights and milk yields, and rising meat output.

More resources, especially mineral fertilizer and agricultural machinery, have been injected into the farm sector since 1965. In 1974, investment in agriculture rose by 9 percent, so that it accounted for more than one-fourth of the country's total investment resources.

INDUSTRY

Industry, the largest component of Soviet GNP, had its best year since 1970, growing at nearly 7 percent, as illustrated in figure 3. Major factors contributing to this growth were adequate supplies of raw materials and energy, a larger than planned influx of new workers, and the highest growth in industrial labor productivity since 1970:

[Fig. 3 follows:]

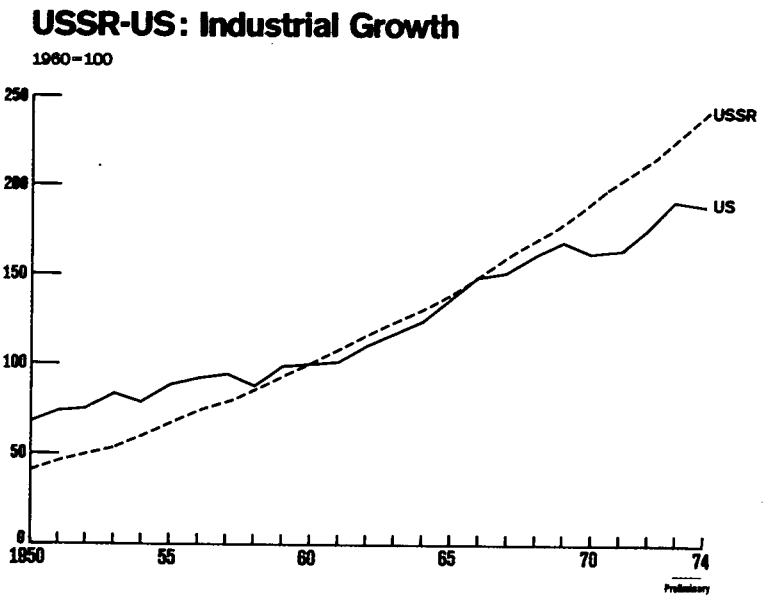

FIGURE 3

Mr. COLBY. The sectors with the highest growth—energy, chemicals, technically sophisticated capital goods, and processed foods—reflect the concern for improving industrial technology and expanding farm output.

ENERGY

The U.S.S.R. is richly endowed with fuels and electric power, a factor strengthening the Soviet position in today's energy hungry world, as shown in figure 4. Energy production met the needs of the Soviet economy in 1974, and provided the growing surplus for export as described in figure 5.

[Figs. 4 and 5 follow:]

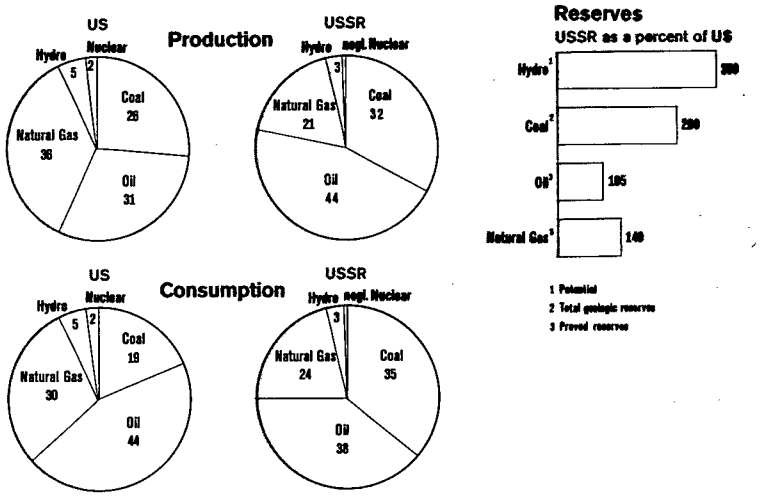

FIGURE 4

USSR: Oil and Natural Gas Production and Trade

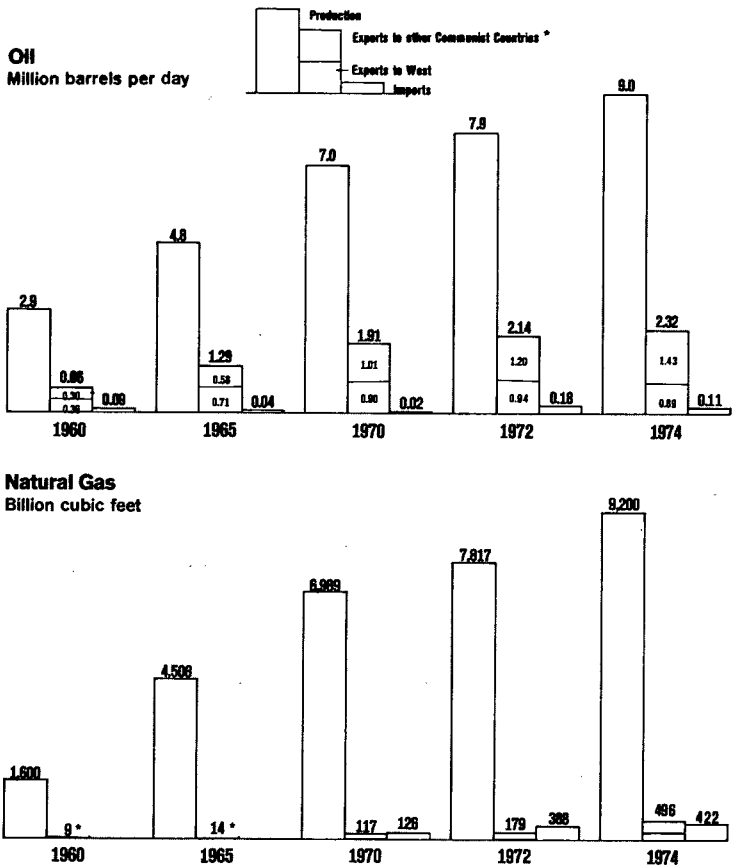

FIGURE 5

Mr. COLBY. The petroleum industry, however, faces technical problems that may restrict or even stop growth in production by the late 1970's. The most serious one is the slow rate of new oil discoveries, because of poor equipment and inadequate exploration funds. Soviet technicians want Western help in locating and developing new fields, particularly offshore.

Natural gas output still lags behind the original 5-year plan goals, although there was a high growth in output last year because some major large-diameter pipelines were completed. Much of this pipe, as well as compressors and valves, are coming from Western Europe in return for future deliveries of natural gas.

The growth rate for electric power production has declined since 1971 largely because a lack of rain in the European U.S.S.R. slowed the growth in hydroelectric power output. Also, the pace of constructing new powerplants is lagging.

Coal output, for the fourth straight year, exceeded its original 5-year plan target and helped cushion the shortfalls in oil and gas production.

MACHINERY

The machinery sector led the growth parade again in 1974. High performers included such producer goods as computer equipment and agricultural machinery, as well as consumer items such as passenger cars and vacuum cleaners.

CHEMICALS

The chemical industry did well in output growth, but the press berated it for failing to complete facilities on schedule. The chronic inability of Soviet industry to meet requirements for modern chemical equipment caused record purchases of such equipment from the West in 1974.

STEEL

Last year the Soviets regained their position as the world's largest steel producer, as illustrated in figure 6, but failed to broaden the assortment and produce high-technology items. This spurred a substantial increase in imports from the West.

[Fig. 6 follows:]

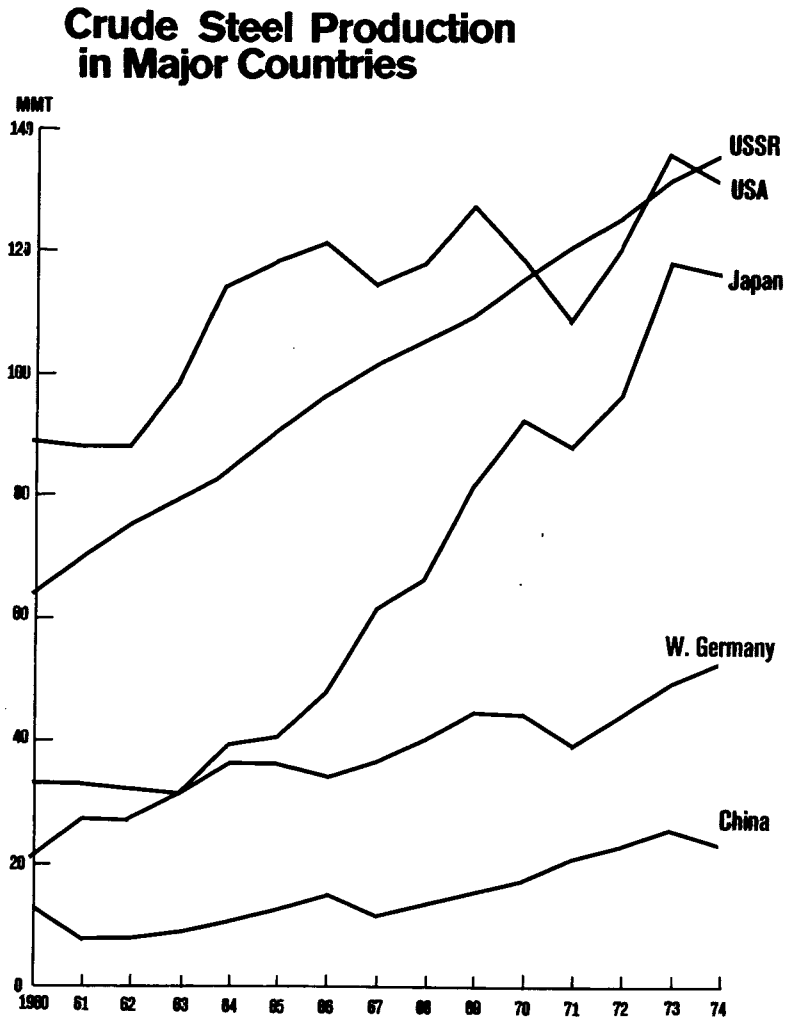

FIGURE 6

Chairman PROXMIRE. Does that figure indicate that they produced a little bit more than we did?

Mr. COLBY. Yes, it does.

Chairman PROXMIRE. It looks as if their production is straight.

Mr. COLBY. Yes.

Chairman PROXMIRE. It is such a straight line, is that reliable? Notice the fluctuations in the other lines. Why is their production so uninterruptably straight with no deviations to speak of?

Mr. COLBY. Chiefly planning.

Chairman PROXMIRE. Usually there are unforeseen developments that occur. What led to that uninterrupted growth?

Mr. COLBY. As a high priority in their concept, they keep the stress on that.

Mr. NOREN. The Soviets plan additions to capacity almost every year. There are no work stoppages in this country, no shortages really of coal or raw materials that could cause steel production to decline in any 1 year. It is not an even percentage increase from year to year, but an uninterrupted increase from year to year.

Chairman PROXMIRE. No energy problems such as we have?

Mr. NOREN. Not in steel, no.

INVESTMENT

Mr. COLBY. Investment continues to absorb large shares of Soviet national output, as shown in figure 7.

[Fig. 7 follows:]

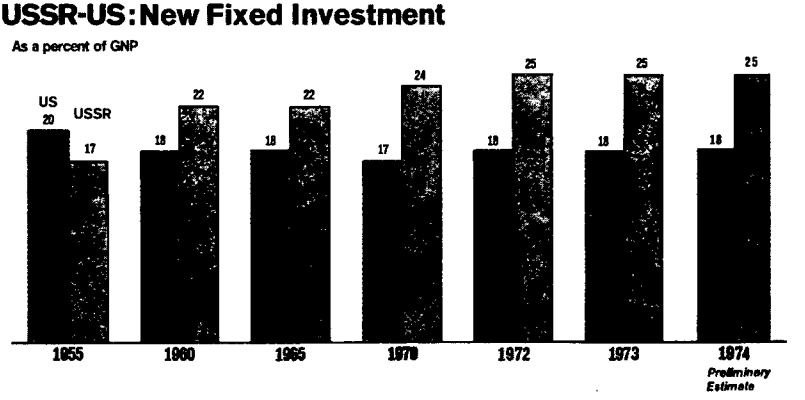

FIGURE 7

Mr. COLBY. In 1974, 25 percent of GNP was devoted to investment in new buildings and equipment, compared with about 18 percent in the United States.

Currently, investment resources are being concentrated on the expansion and modernization of already existing plants and on the completion of projects long underway. Press articles and leadership speeches indicate that lagging capital construction was the chief economic headache of 1974.

CONSUMERS

Consumers enjoyed another perceptible increase in their standard of living in 1974, featured by the increased availability of high-quality foods, as illustrated in figure 8, and of clothing and automobiles. The average Soviet, nonetheless, still conumed only about one-third the goods and services of a U.S. consumer according to the estimates in figure 9.

[Figs. 8 and 9 follow :]

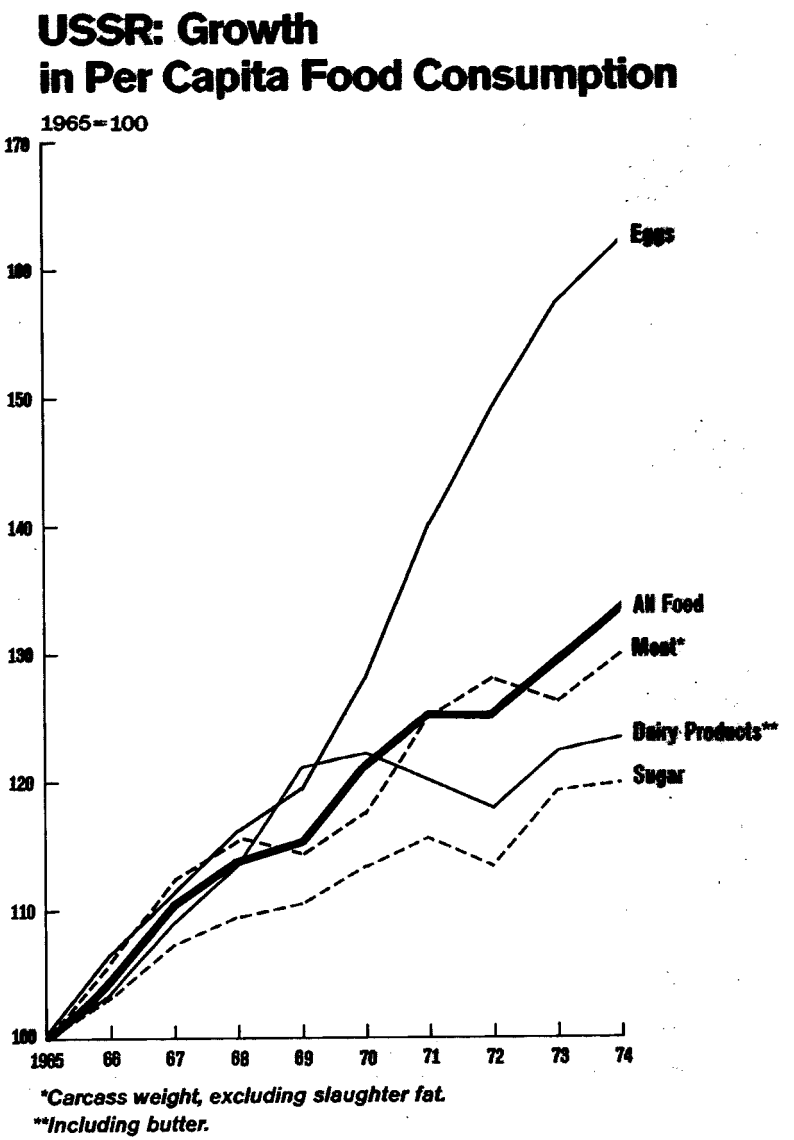

FIGURE 8

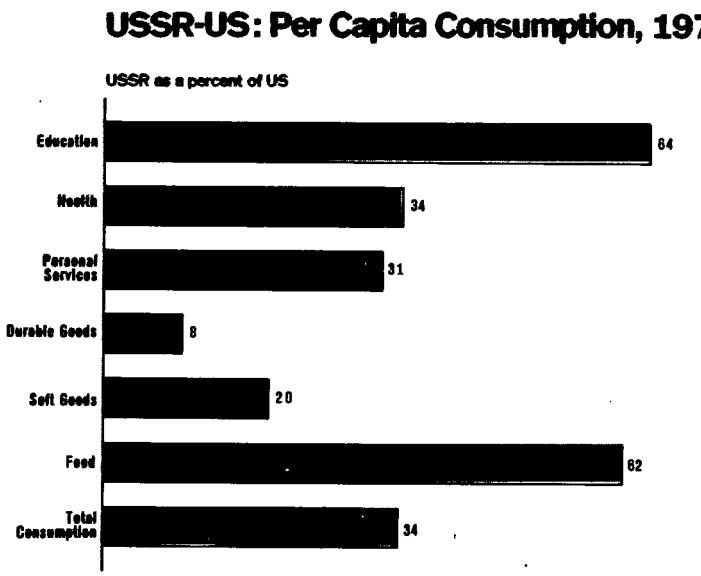

FIGURE 9

Mr. COLBY. Housing continues to be the consumer's most pressing problem. Despite an enormous construction program, per capita living space has grown by only 8 percent since 1970 to 8.1 square meters, compared with the basic West European average of 20 square meters.

WAGES AND INCOME

Wages and per capita income last year continued to fall behind the planned growth rates, apparently because of a deliberate policy to keep incomes in line with available goods and services.

Since 1965, the leadership has implemented a number of welfare measures to help lower income groups. These measures include higher wages for service sector employees, a higher minimum wage and pensions for the disabled and survivors, and enrollment of collective farm families in the social insurance system.

Even so, it was not until 1968 that per capita annual disposable income reached the 620 ruble level designated by Soviet authorities as the acceptable minimum. In 1974, the average monthly wage of Soviet workers was still only two-thirds that necessary to maintain a family of four at the minimum standard. As a consequence, most Soviet women double as workers and housewives.

Because of these income measures—especially the increase in the minimum wage—wage differentials in the U.S.S.R. have greatly narrowed over the past two decades. But we do not believe that this narrowing has appreciably reduced incentives or affected the distribution of labor among occupations and among the sectors of the economy.

Farmers have benefited the most from these measures. In 1960 the average annual wage of state farmers was only three-fifths and collective farmers only one-fourth that of industrial workers. By 1973, state farm wages had grown to four-fifths and collective farm wages to almost three-fifths of industrial wages.

FOREIGN TRADE

Foreign trade increased by more than 20 percent for the second consecutive year, and totaled more than $52 billion as illustrated in figure 10. Trade with the developed West grew about 50 percent following a 60-percent increase in 1973 and now accounts for 31 percent of total Soviet foreign trade.

[Fig. 10 follows:]

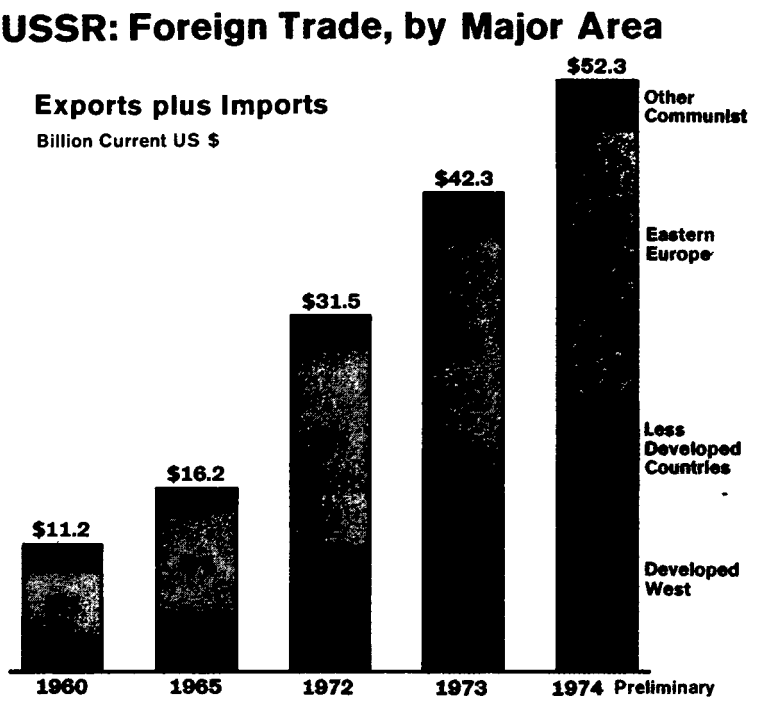

FIGURE 10

Mr. COLBY. Trade with Communist countries grew by only 14 percent causing a further decline in their share of Soviet trade. The fixed prices prevailing in intrabloc trade, rather than reduced volume, was the chief cause of this decline.

There was a major improvement in the Soviet hard currency picture largely because of price increases for Soviet oil and other raw

materials as illustrated in figure 11. This allowed both a rapid growth in imports and a reduction in the huge hard currency deficit of 1973 as illustrated in figure 12.

[Figs. 11 and 12 follow:]

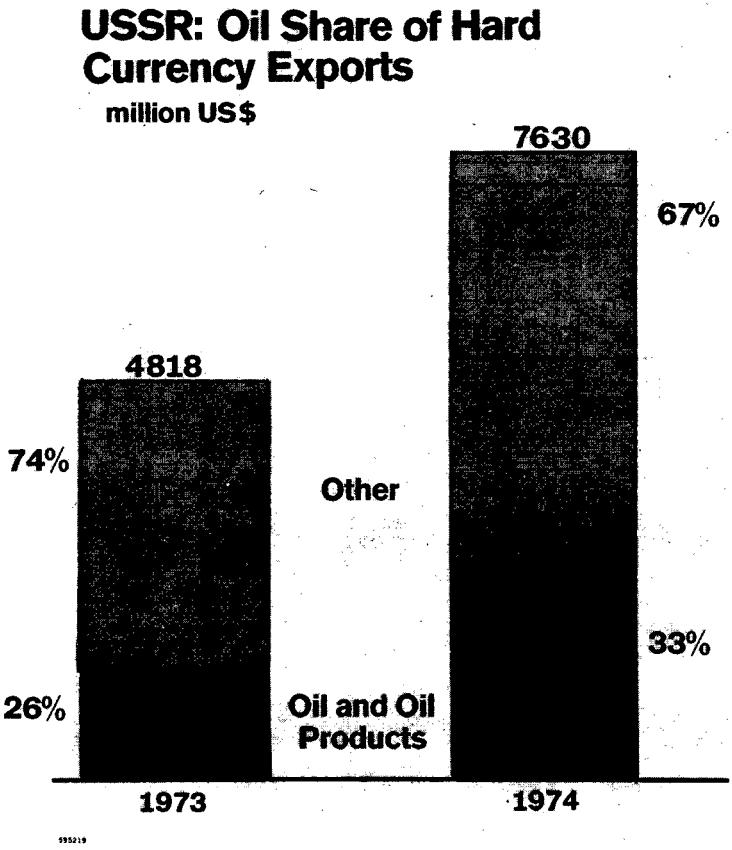

FIGURE 11

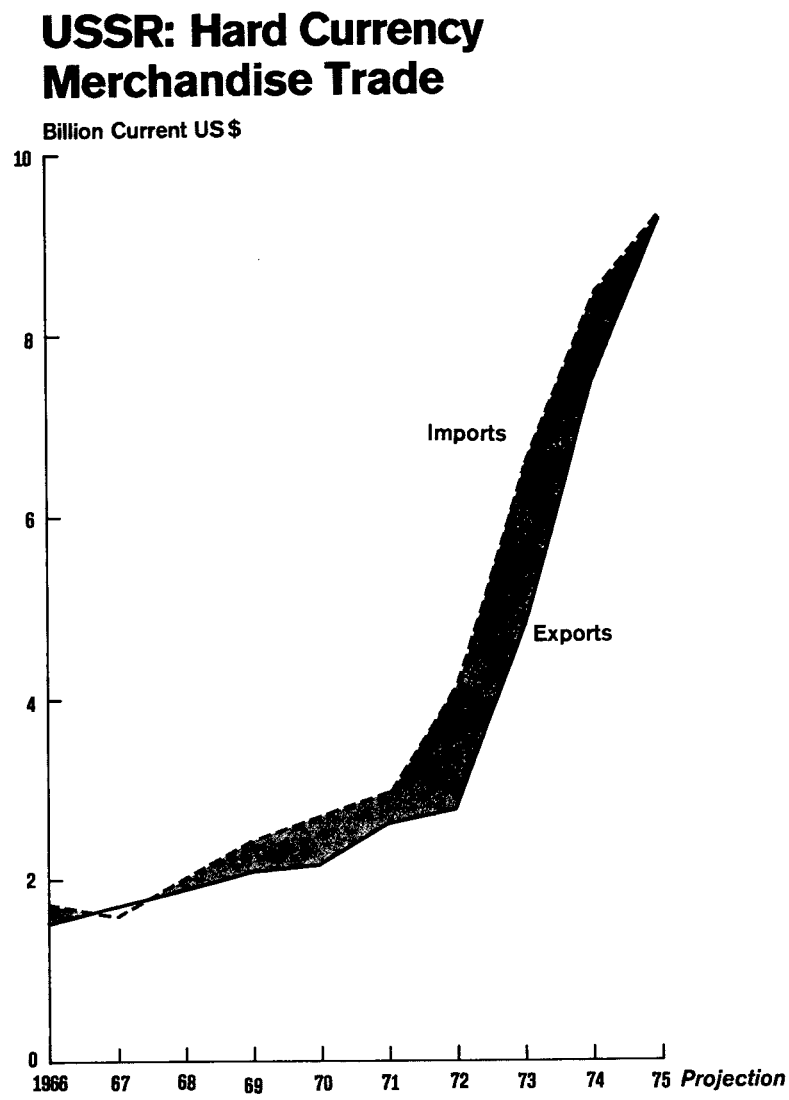

FIGURE 12

Mr. COLBY. Despite its greatly improved export performance, the U.S.S.R. continued to sell gold during the year to take advantage of high prices and to help pay for increased imports.

Moscow also continued to seek low-interest credits from the West to finance imports.

For example, France and Japan extended roughly $3.75 billion in credits during 1974, in support of contracts already negotiated and development projects planned.

As long as Western governments continue to offer long-term credits at interest rates below the expected world long-term inflation rates, Moscow will probably opt for credits and reduce exports of gold and/or goods whose real worth is expected to increase over time.

FOREIGN ECONOMIC AID

Foreign economic aid committed to the LDC's reached a cumulative total of about $10 billion in 1974, with new pledges of about $600 million. This latter figure was somewhat below Moscow's annual commitments in the 2 previous years, and accounted for less than 45 percent of new pledges from Communist countries. It was less than 10 percent of comparable U.S. aid, and only 2 percent of global aid in 1974.

The largest pledge, a $216 million credit to Pakistan for a steelmill, made Pakistan the fifth ranking recipient of Soviet economic aid. The only other major assistance was a credit to Syria for the Euphrates Dam, a textile mill, and port facilities, and a credit to Argentina for power facilities.

Soviet aid deliveries in 1974 featured large grain shipments to India under credits extended in 1973.

PROSPECTS

Prospects for 1975 take on a particular significance, since this is the final year of the ninth 5-year plan. The Soviets hope to more than double the 1974 GNP growth rate, to about 7 percent, based largely on gains in the agricultural sector.

Industrial growth is scheduled to nearly match last year's pace, an ambitious goal.

In the first quarter of 1975, industrial output grew 7.5 percent by Soviet calculations—down from the 8.7 percent achieved in the first quarter of 1974.

Output from new capacity is expected to be a key growth factor in 1975. A recent Council of Ministers meeting, however, strongly criticized the pace of capital construction and repeated the age-old complaint about the huge volume of resources tied up in unfinished projects.

Attaining the planned 11-percent growth in agricultural output will require good weather during the growing and harvesting seasons. So far, the U.S.S.R. appears headed for a bumper 1975 grain harvest of about 215 million tons, not far below the 1973 record of 222.5 million tons.[1]

Conditions during the past winter were favorable for winter grains, which usually supply one-third of total Soviet grain output. An above-average spring grain harvest is possible if current moisture deficiency in some areas does not spread. The projected grain output will more than cover requirements for domestic use and export.

The consumer will remain high on the priority list. His improved position is evidenced by the record percentage of investment going

[1] The forecast was based on weather through May and the progress of spring sowing. In June and July a drought damaged grain and fodder crops over a wide area of the Volga Valley, western Kazakhstan, and the southern Urals as well as in parts of the North Caucasus and the Ukraine.

to agriculture, and by the expansion planned for the machinery branches that supply equipment for the agricultural sector and for light and food industries.

But the consumer's problems will not be solved overnight.

The planning system still tends to reward increases in the quantity of output, rather than quality and variety. Construction is a notoriously inefficient sector, and housing will continue to lag behind other consumer sectors.

Another increase in export earnings in 1975 and large credit lines will allow Moscow to make more purchases of Western technology and capital equipment.

Hard currency exports should again rise because of increases in oil and gas exports, which will offset any decline in exports of other raw materials. Gold sales are an additional large source of potential foreign exchange earnings.

The favorable balance-of-payments position will allow Moscow to pay cash for some projects, resist high interest rates, and bargain on commercial terms.

Moscow will continue to seek credits from the West to finance imports. So far in 1975, the U.S.S.R. has obtained almost $4 billion in low-interest credits from the United Kingdom, Italy, Canada, and Japan.

In addition, two Eurodollar loans have been made totaling $350 million—probably in anticipation of payments coming due on cash contracts.

PROBLEM AREAS

Despite the generally favorable economic trends I have been describing, the Soviet economy is still plagued by basic problems such as declining growth in productivity and lagging technology.

The gains in output planned for 1971–75 were to depend much more on growth in productivity than on growth in capital and labor. Yet, the slight increase in GNP growth achieved by the Brezhnev leadership over the Khrushchev years has occurred only by beefing up inputs of man-hours. Actually, the productivity of the three combined elements—land, labor, and capital—did not grow as rapidly as in previous years as illustrated in figure 13.

[Fig. 13 follows:]

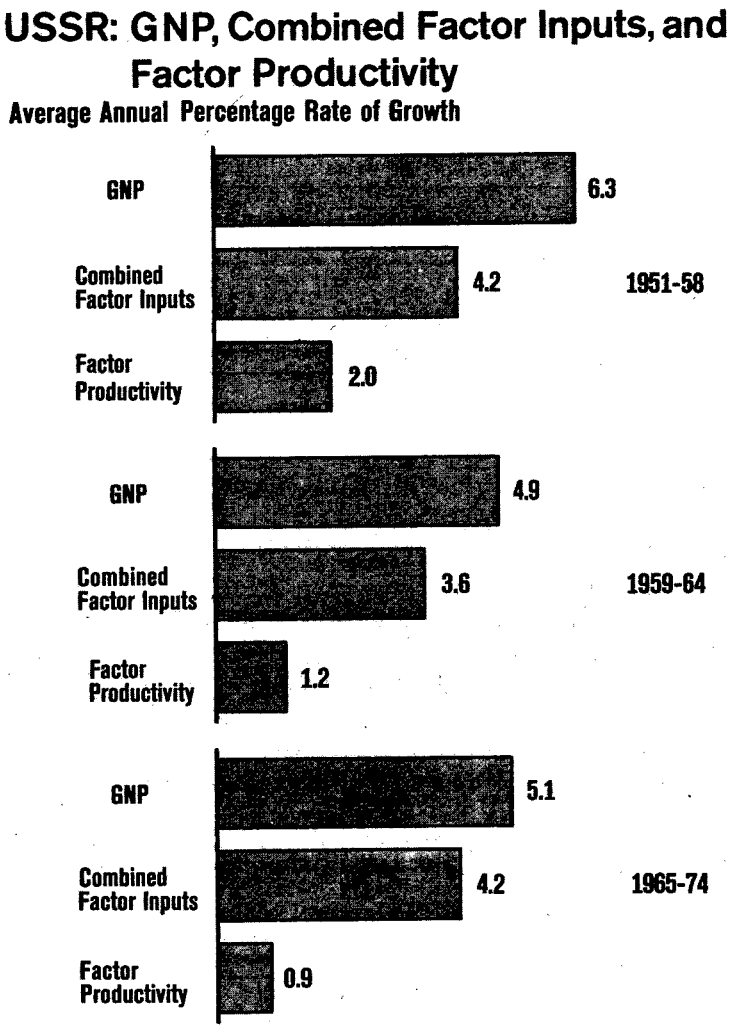

FIGURE 13

Mr. COLBY. The introduction of new technology is a prerequisite to growth in productivity. Yet, the emphasis on quantitative output and poor management practices in the R. & D. sector have been major barriers to quick application of new techniques, and have impeded the introduction of foreign technology.

Bold new strategies are required to improve productivity and speed technological progress, but only a conservative scheme to reorganize industry is fitfully underway. Even here, progress is slow, and opposition to the reform is wide ranging.

PART II: THE COSTS OF SOVIET DEFENSE PROGRAMS

Mr. Chairman, since I briefed you last year, we have revised and updated our estimates of the cost of Soviet defense programs. We conduct a complete review of these estimates every year to incorporate new information and analysis. As you know, we are in the process of reevaluating our ruble estimates. Therefore, I will confine my remarks today to the dollar costs of Soviet defense programs.

Before assessing the results of this update, I would like to outline the procedures we follow to estimate defense costs, and our confidence in these estimates.

METHODOLOGY

I will begin by explaining the dollar concept that we use in costing Soviet defense programs. We use dollar cost estimates in order to compare Soviet defense programs with U.S. programs.

To do this, we estimate what it would cost in the United States to develop, procure, and man a military force of the same size, and with the same inventory of weapons as that fielded by the Soviets. We also figure in what it would cost to operate that force as the Soviets do.

In contrast to the large amount of data regularly released by the U.S.S.R. on the civilian economy, information on spending for defense is closely protected. This has been true since Lenin's time.

Only one statistic—the single line entry for "defense" in the annual State Budget—is announced each year and the Soviets have never revealed what activities are covered by this figure. Moreover, this figure clearly serves a political function, which makes its reliability questionable. For example, the announced budget cuts in 1974 and 1975 fly in the face of the rapid strategic buildup now underway.

Consequently, our estimates of the costs of Soviet defense programs are developed independently of the Soviet defense budget statistic, by means of a direct costing methodology.

We begin with detailed estimates of the Soviet forces and their operations, and then apply dollar prices to these weapons programs and activities. We use, in all cases, 1973 as the base year for prices.

The only element of Soviet defense spending not derived through the direct costing approach is military R.D.T. & E.—research, development, test, and evaluation—which is estimated from published Soviet financial statistics.

CONFIDENCE IN ESTIMATES VARIES

Obviously, the confidence we have in our estimates of Soviet defense spending varies according to the amount and reliability of the intelligence we have on the different components of their Defense Establishment.

PERSONNEL COSTS

Take, for instance, personnel costs. Our dollar cost estimates for personnel are derived by applying U.S. compensation rates, to our estimates of Soviet manpower. Compensation rates are based on U.S. pay and allowances, rations, and clothing allowances for 1973.

PROCUREMENT COSTS

Procurement costs are derived from applying dollar cost estimates to our estimates of the numbers and types of weapons and other equipment procured by the Soviets. Our dollar concept is the cost of producing the Soviet design in the United States, using 1973 U.S. production technology, input prices, and profit margins. After I have outlined the methodology, I will provide a specific example of how we apply it.

Our confidence in our cost estimates is in almost direct proportion to our knowledge of Soviet equipment.

We have high confidence in our intelligence concerning the production of large, visible items—generally the most costly items in the Soviet inventory. [Deleted.] We are less certain about smaller items of equipment.

The cost of weapons depends upon their design. When we have reliable knowledge of the physical and performance characteristics of individual Soviet weapons, we can estimate their costs closely. When our knowledge is less complete, however, we have to work from similar U.S. weapons or components, using our general understanding of Soviet design practices to estimate the complexity—and hence the cost—of the Soviet weapons.

[Deleted.]

Most of our cost estimates are derived from U.S. weapons costs, adjusted to "Sovietize" the weapon. Some lower-cost Soviet items are costed simply on the basis of the nearest equivalent U.S. weapons.

To the extent that we are not able to "Sovietize," and U.S. weapons used in the cost estimating methodology are more complex, our estimates probably tend to overstate the costs of producing the Soviet design. Sometimes, however, when we have actually examined Soviet weapons, they have proved to be far more complex—and far more costly to produce—than we had previously estimated.

[Deleted.]

OPERATING COSTS

When it comes to operating costs, our information on Soviet practices is inferior in quality to that on the weapons systems. Consequently, our estimates of Soviet operating costs are based largely on U.S. analogy, adjusted to reflect Soviet usage rates where possible.

R.D.T. & E.

Military R.D.T. & E. outlays are particularly difficult to estimate. Just what the officially announced expenditure for "science" covers is unclear, and the miltary share of the total is uncertain. As a consequence, the range of possible error in the military R.D.T. & E. estimates is greater than for procurement or operating costs.

ICBM'S

This chart illustrates how we develop cost data for one type of Soviet weapon system: Intercontinental ballistic missiles.

Technical sources provide information that makes possible a determination of the size and general characteristics of each missile system

and of the number of silos which the Soviets have deployed for each missile type. The top line shows how the number of deployed silos for the SS–13 missile grew from 1969 through 1972 to the present total of 60.

By applying a methodology which takes into account the requirements for deployment, training, and other factors, an estimate of the missile's rate of production is made, which includes pertinent information from any other sources that may be available about the production process. This provides us with the missile production curve on the second line of the chart.

The third line, showing the estimated annual dollar costs of this procurement, is derived by applying the production numbers to an estimate of the cost of the initial unit produced and then bringing the costs down a cost reduction curve which U.S. production experience has led us to believe is appropriate for this kind of hardware.

The estimate of the operating cost, which is related to the order of battle of deployed silos, includes the manning of the missile force and, again through the use of U.S. analogy, the costs of maintaining the operational missiles.

This next chart is an example of how individual weapon system costs are integrated into increasingly larger aggregates to make up our estimate of total defense costs.

Here, one can see that the total cost of one Soviet ICBM system, the SS–13, becomes part of the cost of the total ICBM forces.

These costs, when added to the costs of other strategic forces, make up the costs of the intercontinental attack mission.

Finally, the costs of the other major missions, plus estimates of R.D.T. & E., command, support, and other costs are accumulated to form an estimate of total defense costs.

MARGIN OF ERROR

In summary, our estimates of the dollar costs of Soviet military forces are a function of the intelligence community's knowledge of these forces, and the changes in them over time. That knowledge, however, has been improved in recent years by sophisticated technical means of collection which have permitted better descriptions of Soviet systems and programs. Our estimates do have a margin of error, but we believe this is not likely to be more than 15 percent. Given the technique of direct costing that is used, the estimate is more likely to be too low than too high.

Bias in Dollar Comparison

Chairman Proxmire. Could we interrupt at this point?

If Congressman Brown of Michigan would care to join in the questioning, it would be appropriate to ask you about this technique.

The staff has informed me, in their view, you may have a clear and consistent bias in favor of overestimating Soviet costs for another reason that I did not detect, and I tried to go over your material before I left for the floor. They argue that the estimate of Soviet defense spending in dollar terms is inherently biased in the direction of increasing the apparent Soviet defense budget. They say that you could see that if you showed the U.S. budget in ruble terms.

Do you concede that your analysis is somewhat biased because of the situation? Would you explain that?

Mr. COLBY. Mr. Chairman, I will ask my colleague to comment, but first I will say that the purpose of working out the dollar comparison is to help us in our decisionmaking about our budgets. Obviously, there are certain things in the Soviet system which probably cost less in rubles than they would in dollars, clearly; but in order to get an equivalence, we have gone through this direct costing method.

We also study the direct ruble cost of the Soviet defense budget, of course. As you know, we are looking at that very hard. Doing a ruble cost of the American budget is certainly possible. Obviously, it is complex. I think we believe that it will not come out to make any substantial difference in this comparison. There are many things which would drive such a comparison rather forcibly. We get into matters, which one finds in the American budget but one cannot find in the Soviet budget because American technology is so far advanced.

For example, take some of the more complex electronic and technical equipment in our defense budget; you just cannot find anything comparable to that in the Soviet budget. You could not apply the cost of a rather simpler and really obsolete Soviet piece of equipment and say that is equivalent to the F–16 against that kind of Soviet expenditure. The F–16, if you grind in the increased technical capabilities would go very high on the ruble list and would probably be almost uncountable.

RUBLE COMPARISON

Chairman PROXMIRE. Have you ever made an estimate of a U.S. budget in ruble terms?

Mr. PROCTOR. May I address the first question, please?

Chairman PROXMIRE. All right.

Mr. PROCTOR. It is a well-known statistical fact that when you price the market basket of one country in terms of prices in another country and make a comparison, there is usually an upward bias. This is a known statistical fact in any international comparison. That is simply because people in one country will tend to buy more of that which is relatively cheap in their country and buy less of that which is relatively expensive in their country. For example, when American families went overseas in the 1940's and 1950's, they found household help to be very cheap and used much more of it than they had in the United States.

This is well known, and there is a tendency to overstate the market basket of country A when it is valued in the prices of country B, and the reciprocal would be true in the other direction.

The ratio of Soviet military expenditures to U.S. military expenditures both priced in dollars will tend to be higher than a similar ratio priced in rubles. This is an example of a statistical truth. The degree to which this difference would become apparent in the statistics will depend upon the degree of fineness of pricing groups of commodities and services.

If you do a very articulated calculation, the difference between the ratios would tend to be greater. If you compress and have two, or three, or few categories, this tends to reduce the difference between the ratios.

The answer to your second question is yes, we have tried it in a very gross sense with very few categories, something like a half a dozen, ten.

Chairman PROXMIRE. Can you supply us with those estimates you made?

Mr. PROCTOR. They are very rough. I would not want to be held to them except as very gross numbers.

Let me tell you what the difference is for 1974. It amounts to something like, in terms of dollars, 20 percent higher. I would rather say about a fifth; that is, Soviet military expenditures being one-fifth higher in terms of dollars, and in terms of rubles, about 10 percent higher than the United States.

Chairman PROXMIRE. One reason why it seems to me you might have an overstatement is that maybe I misinterpret what you do, but when you state the Soviet costs in terms of dollars and U.S. prices, then they have an enormously large personnel, they are paid far less.

Mr. PROCTOR. In rubles.

Chairman PROXMIRE. In Russia in any terms than they are in this country. They do not have a volunteer army in the sense we have—a volunteer anything, for that matter.

For that reason, it seems to me you might get a distorted notion of the difference.

Mr. COLBY. That balances out a little bit. Our costs for personnel are very high, of course, but our cost for equipment is comparatively low. On the other side, their cost for personnel is relatively low and their cost for equipment is relatively high. So it works out.

Chairman PROXMIRE. In our military I understand 58 percent of the cost of the defense budget is personnel costs. Their personnel is much bigger than ours, almost twice as big, for the reason, it seems to me, we automatically get a U.S. pay rate. I think kind of a distortion——

Representative BROWN of Michigan. Getting back to what you said a minute ago, the high priced items in country A always tilt the scale in that direction. Is not the cost of technologically advanced items available in Western Europe more alike than the cost of personnel in the two countries? In other words, under your hypothesis, the chairman's assumption would be correct?

Mr. PROCTOR. No question.

Representative BROWN of Michigan. The expensive item in this country, like I say, may be personnel, vis-a-vis sophisticated equipment, whereas the high cost there is sophisticated equipment rather than personnel, but the difference between the cost of personnel in our country and the cost of personnel in theirs is much more distorted than the comparable cost of sophisticated equipment in each country.

Mr. PROCTOR. That may be so for some kinds of equipment produced in both countries, but in other fields our equipment is much more sophisticated than they can even produce, and there is no comparable ruble price for much of the advanced technology in our own equipment.

INDEX NUMBER PROBLEM

What we are talking about is nothing very peculiar to our methodology at all. It is universal. It is known as an example of the index number problem in economic statistics. The usual way of trying to compensate for the differences in ratios is to take the ratios based

on one country's prices, say, based on dollars, and then ratios based on the other country's prices, say on rubles, and to take a geometric mean. The important fact or conclusion that one should draw from the numbers I gave you earlier is that on a gross basis, even pricing U.S. programs in rubles still shows that military expenditures were clearly higher in 1974 in the Soviet Union than in the United States—in terms of rubles, around 10 percent; in terms of dollars, around 20 percent.

Chairman PROXMIRE. I would like to ask two things about this. No. 1, I would appreciate it if you could, even though what you would give us would be very rough and crude, whatever you could give us, whatever qualifications you like, we would like to see it.

Mr. COLBY. We would have to put an additional qualification on new information which could affect it. We do not really know the answer.

Chairman PROXMIRE. Will you do that for us?

Mr. COLBY. Certainly.[1] If I may, Mr. Chairman, since this material is so preliminary, just in terms of economic integrity, we have no problems of sharing it with you, but we would as soon not publish it as a finished product at this point.

Chairman PROXMIRE. I think you are right.

GROSS COMPARISONS OF LIMITED VALUE

The other point is that this drives home to me—correct me if I am wrong—the fact that a gross estimate between what they spend and what we spend is of very limited value. What we have to do is recognize the fact that they have superiority over us in some respects. We have superiority over them in other respects. We have to look at the differences rather than get a gross dollar or ruble figure that means very much.

Mr. COLBY. I could not agree more, and I do not think my associates could agree more with you. We do this because of demand for it, obviously, but we are highly conscious of the fact that comparative military assessments depend on many, many more factors than the dollar—ruble comparison. We are talking about qualitative weapons, effectiveness, intangibles, morale, discipline, things of this nature. These are the things that affect comparative military power, which is a much bigger factor than the direct dollar comparison.

EFFECTIVENESS NOT MEASURED IN DOLLAR COMPARISONS

Mr. PROCTOR. One observation that I would make—what we are thinking about when we talk about military expenditures is input into a military force. We are not measuring or implying effectiveness of that military force, either in whole or in part.

Chairman PROXMIRE. That is a good point. Thank you.

Representative BROWN of Michigan. One question.

You have decided to revaluate the Soviet defense cost in American dollars. Those are constant 1973 dollars.

Mr. PROCTOR. At this time.

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[1] See Mr. Proctor's letter to Chairman Proxmire, dated Sept. 5, 1975, pp. 89–90.

Representative BROWN of Michigan. Do the Soviets evaluate our budget in rubles?

Mr. PROCTOR. I have seen no evidence of it.

Mr. BURTON. I have seen commentary that they do make such evaluations and that the ruble-to-dollar ratio gives them fits.

Representative BROWN of Michigan. What I am saying, if they evaluate ours in rubles and we evaluate theirs in dollars, if there is any distortion it is on the upward side.

Mr. PROCTOR. In both cases.

Representative BROWN of Michigan. Do we not constantly look at the other as though a greater effort would be made——

Mr. PROCTOR. There may be a tendency for that.

Mr. COLBY. I think part of the answer to that is our attempt to do it in rubles comes out not very substantially different in the overall ratio.

In other words, the difference between 1.2 and 1.1 really—and that is not a very great difference in the ratio, whether you run it in dollars or rubles.

We are walking on very thin ice here on our ruble calculation nonetheless. That is the initial cut that we get out of it.

Representative BROWN of Michigan. Thank you.

Chairman PROXMIRE. Go right ahead, sir.

DOLLAR COSTS OF SOVIET AND U.S. DEFENSE

Mr. COLBY. Mr. Chairman, figure 14 shows the dollar costs of Soviet and U.S. defense for the period 1964 to 1974. The U.S. data here has been adjusted for comparability with our estimates of the cost of the Soviet defense effort. All dollar data are expressed in 1973 prices.

[Fig. 14 follows:]

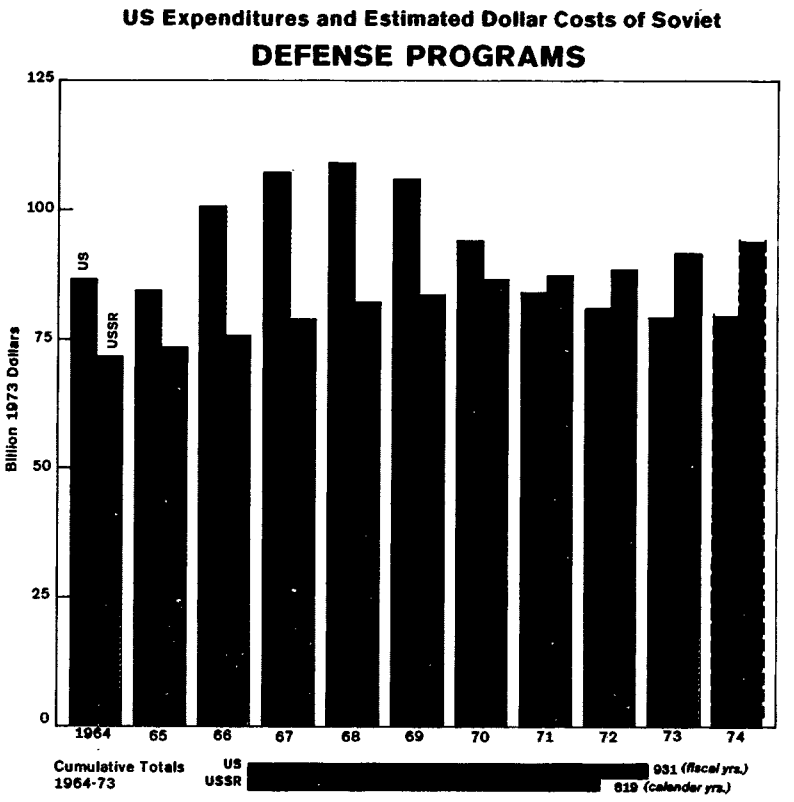

FIGURE 14

Mr. COLBY. Measured this way, the estimated dollar costs of Soviet defense programs have exceeded U.S. defense expenditures in every year since 1971. U.S. spending shows a steady decline from a peak in the late 1960's. At over $93 billion, Soviet expenditures for 1974 were about one-fifth higher than the $70 billion the United States spent. As you can see from the horizontal bars at the bottom of the figure, the estimated dollar costs of Soviet programs for the 1964–74 period as a whole came to about 90 percent of the U.S. level.

Data are not yet available to permit detailed calculations in 1974 prices, but it is clear that both the estimated dollar cost of Soviet defense activities and the U.S. defense expenditures would be higher.

MILITARY MISSIONS

This next figure, figure 15, breaks down total spending into military missions, and shows the estimated dollar cost of Soviet programs as a percent of U.S. spending.

[Fig. 15 follows:]

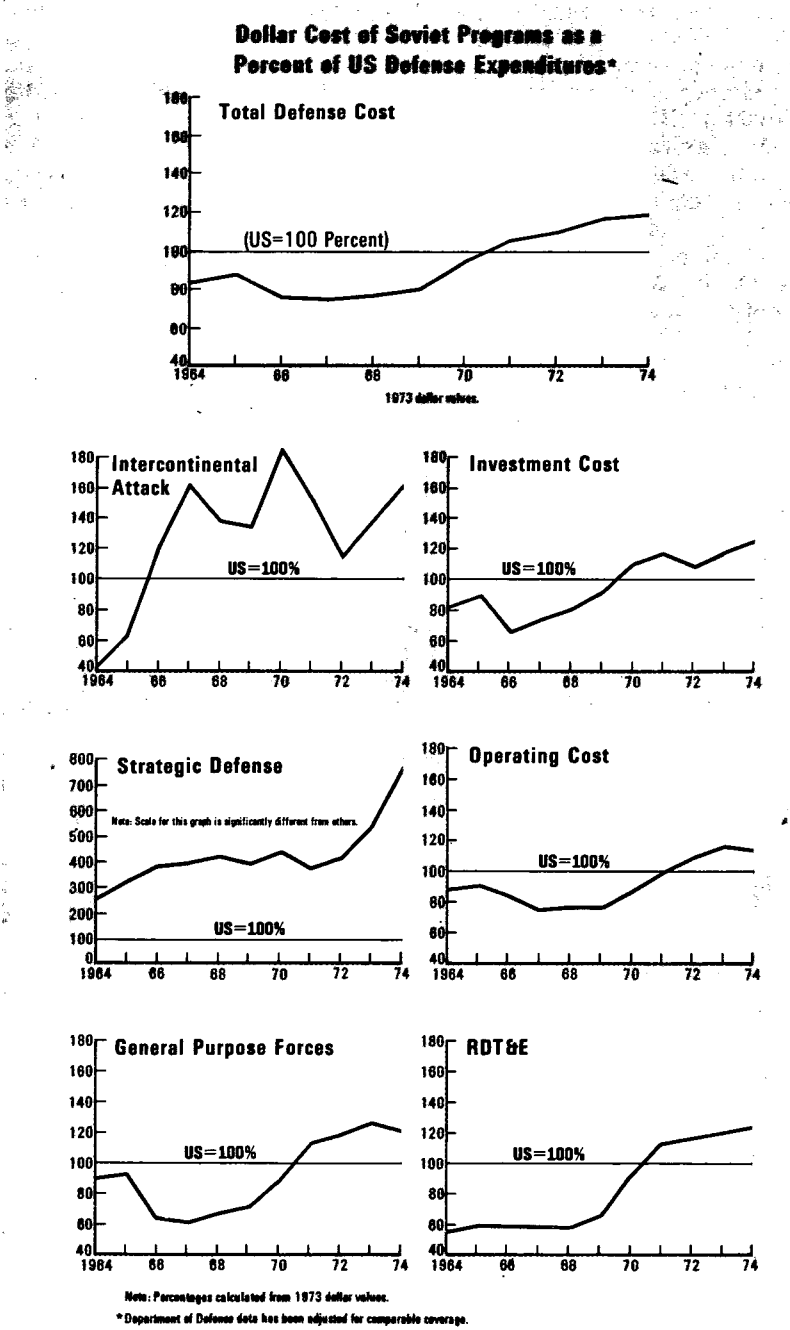

FIGURE 15

INTERCONTINENTAL ATTACK PROGRAMS

Mr. COLBY. You can see that the estimated dollar costs of Soviet intercontinental attack programs—excluding R.D.T. & E.—exceed U.S. expenditures for every year since 1966, when most U.S. systems were already operational, and were some 60 percent higher in 1974.

Soviet ICBM programs cost in dollars are about three times U.S. ICBM costs for the period as a whole. The dollar costs of 1974 Soviet programs were almost 4½ times the U.S. spending level, reflecting procurement of the new ICBM systems approaching operational status.

The dollar costs of Soviet SLBM programs exceed U.S. expenditures on SLBM's for every year since 1969, and were almost 30 percent greater in 1974.

On the other hand, U.S. spending for intercontinental bomber programs was about five times greater than the costs of similar Soviet programs during the period as a whole.

STRATEGIC DEFENSE FORCES

As for strategic defense forces, the ABM and similar systems, the U.S.S.R. has traditionally maintained much larger ones than the United States. You will note that the Soviet line is above the U.S. figure during the entire period.

The cumulative dollar costs of Soviet programs over the 1964–74 period are four times U.S. spending, the biggest difference being in SAM and fighter-interceptor programs.

In 1974, the dollar costs of Soviet strategic defense programs amount to almost eight times U.S. expenditures for strategic defense.

GENERAL PURPOSE FORCES

The estimate of dollar costs of Soviet general purpose forces increases steadily from 1964–74, although there are some decreases in relation to U.S. costs. This is because U.S. expenditures grew rapidly during the Vietnam involvement, but had returned to the 1964 level by 1971. As a result, the dollar costs of Soviet general purpose forces surpass the level of U.S. expenditures after 1970, and exceed it by 20 percent in 1974.

The estimate of dollar costs of Soviet ground forces for 1974 is more than twice U.S. spending, reflecting the much higher levels of Soviet manpower.

The dollar level for naval forces is about the same for both countries.

The estimate of dollar costs of Soviet tactical air forces grows rapidly beginning in 1969, but is still only about half the U.S. spending level.

I think that is an example of this problem of the relationship between the two forces, the difference in the expenditure for air between the two countries where they are considerably below us, whereas in the ground force total, they are considerably higher.

RESOURCE CATEGORIES: INVESTMENT AND R.D.T. & E.

The expenditures for military forces can also be divided into resource categories for comparison purposes—that is, research and development, investment, and operating costs, as shown on this figure.

For military investment and R.D.T. & E., the estimated dollar costs of Soviet weapons acquisition programs exceed U.S. expenditures for comparable programs beginning in 1970. In 1974, the estimate is about one-fourth larger than U.S. spending. For the 1964–74 period as a whole, however, U.S. expenditures are about 10 percent higher than the dollar costs of Soviet programs.

For military R.D.T. & E. alone, U.S. expenditures exceed the estimated dollar costs of Soviet R.D.T. & E. programs by more than 25 percent for the 1964–74 period as a whole. But since 1971, Soviet costs are higher, and for last year topped U.S. spending by about 25 percent.

I should caution, however, that our estimates for Soviet R.D.T. & E. are subject to greater uncertainty than those for other categories of Soviet military activities.

Soviet investment spending shows a sharp upturn beginning in 1973, because of the initial procurement costs for the new generation of Soviet ICBM's and rapid growth in procurement of tactical aircraft. At the same time, U.S. procurement of aircraft and missiles has been declining. The estimate of dollar costs of 1974 Soviet procurement of missiles and aircraft is about one-fourth greater than U.S. expenditures.

The estimate of dollar costs of Soviet ships and boats procurement exceeds U.S. outlays by one-half over the 1964–74 period, and by about one-third in 1974.

The dollar costs of Soviet land armaments procurement amount to over three times U.S. expenditures for the 1964–74 period.

OPERATING COSTS

As for operating costs, the largest component is the cost of military personnel. Soviet manpower rose steadily over the 1964–74 period, while military force reductions were lowering U.S. costs. Last year, the dollar cost of Soviet manpower was almost 50 percent higher than our manpower bill.

I would like to emphasize here—as I have in previous briefings—that the comparison between the estimated dollar costs of Soviet and U.S. defense spending reflects the general magnitude of the programs, but it is not by itself a measure of military capabilities. Equal levels of spending do not necessarily result in equal military effectiveness.

MANPOWER COSTS

Representative BROWN of Michigan. Director Colby, in the manpower area, once again you are treating personnel and individuals in the armed forces of the Soviet Union as receiving——

Mr. COLBY. The same pay and allowances as an American.

Representative BROWN of Michigan. As an American.

Mr. COLBY. Right.

Representative BROWN of Michigan. That is why these figures come out as they do.

Mr. COLBY. Right. Exactly. You would have to do it in rubles to get it realistically from their viewpoint. In other words, the ruble cost of their manpower would be quite a different picture, of course. It would be a substantial expenditure because of the large amount of manpower.

Representative BROWN of Michigan. The figure of commitment of their defense spending to personnel is about half of ours, as I recall; is it not?

Mr. COLBY. Well, no, I do not think that is necessarily true, because they have so many more personnel.

Representative BROWN of Michigan. Where ours is 50 percent for personnel costs, theirs is something like 38 percent.

Chairman PROXMIRE. I do not remember that. Ours is 58 percent.

Representative BROWN of Michigan. I saw those figures kicked around some place.

Mr. PROCTOR. Last year we did present our figures in terms of rubles. As Mr. Colby said when he opened, this whole ruble calculation is under review. I do not recall what the number was last year.

Mr. BURTON. I believe it was 40 percent.

Representative BROWN of Michigan. Thirty-eight percent is what I remembered in comparison with our 50-some percent.

Mr. COLBY. Their manpower is so much cheaper. Even if they have many more, they still come out a smaller percentage of the total. On the other hand, their costs for complex equipment are relatively so much higher; even if they get less of it, it comes out as in these figures. Their total expenditures are quite high for those kinds of things.

In the Soviet industry the best quality control, some people almost say the only really serious quality control, is for military procurement, military equipment. This is very costly. The civilian economy does not get the same control. That runs the cost for the kind of military equipment up quite high in order to get reliability.

Representative BROWN of Michigan. Thank you.

FUTURE TRENDS

Mr. COLBY. One question remains, Mr. Chairman. What about future trends in Soviet defense programs? This is not an easy one to answer, but we do have projections.

Our current estimate of the costs of Soviet defense programs over the past decade shows a steady upward trend, with annual growth rates averaging about 3 percent per year.

The upward path has been marked by cycles, however, with annual rates of growth ranging from 1 to 5 percent.

This cyclical behavior results almost entirely from fluctuations in procurement costs during the deployment phases of succeeding generations of strategic systems.

The expansionary phase of the latest cycle began in 1973, as the USSR undertook procurement of a new round of ICBM's. The general pattern during the current phase is consistent with past cycles. We believe it likely that costs will level off at a new higher plateau in 1976–77, when the current ICBM programs are completed.

I would note, however, that the present procurement cycle seems to be more broadly based than its predecessors. As I stated earlier, in addition to larger strategic programs, the Soviets are procuring more tactical aircraft and ground force equipment than in the past.

Strategic Forces

Chairman Proxmire. Is it possible that the two elements that explain the consistent increase in Soviet expenditures for defense are No. 1, their sensitivity to the increased Chinese threat, and No. 2, and probably bigger in terms of dollars, their determination to have enormous strategic capability?

Mr. Colby. Certain the second is a big factor, a very big factor. On the Sino-Soviet frontier——

Chairman Proxmire. By strategic, I am talking about nuclear.

Mr. Colby. Nuclear, missiles, rockets. That is one of the major factors that have driven them and will continue to drive them in terms of quantity and in terms now of a qualitative context as they try to develop and put into deployment the MIRV's. We do look forward, quite frankly, to another generation of Russian missiles in 1978–79.

Emphasis on Defense Against Invasion

Chairman Proxmire. I do not want to jump ahead of you. The Soviets, I understand—this is kind of a conventional notion—have emphasized defense and weapons which will enable them to defend their country. Is this still the case with its strategic deployment in your view?

Mr. Colby. This is still a very strong factor in their overall approach. They divided their armed services into five organizations—what we call the Ground, Navy, and Air Forces, then the Strategic Rocket and the Air Defense Forces. Those are five separate services. The Air Defense Force is in charge of the surface-to-air missiles and that sort of thing. There are something like 10,000 surface-to-air missiles around the Soviet borders, and to some extent in the interior—but mainly in the border areas. It is an enormous investment. We have practically nothing comparable to it. We have a tiny expenditure on Hawk missiles and so forth, mainly for the protection of our tactical units.

In the Soviet society, a town like Leningrad is ringed with active air defense sites, and there is a very large expenditure for which we do not have anything comparable.

Chairman Proxmire. A defense against air attack?

Mr. Colby. A defense against aerodynamic vehicles. The antiballistic-missile system has, of course, been constrained to one area around Moscow. They do have an established structure there to be able to protect the Moscow area with some degree of effectiveness. They have justified it in part, even if it cannot protect the Moscow area against a U.S. missile attack, as protecting against the Chinese.

Chairman Proxmire. The rest of their defense does not make a great deal of sense, it seems to me. There has not been that much refinement, development, and improvement in the bombers, and bombers seem to be, if not obsolete, at least weapons more of the past than the future; and the missiles seem to be so much more.

Mr. COLBY. I do not think that is a correct statement.

Chairman PROXMIRE. This would not be a defense against—No. 1, against Minutemen. It would not be a defense against our submarine missiles. It would not be a defense, would it, against air-to-ground missiles as long as they are missiles?

Mr. PROCTOR. Some of them. Besides the inter-continental bombers, the Soviets face a rather formidable threat from attacking aircraft in Europe—NATO countries, the U.S. forces stationed there—and it is quite a large number of aircraft as they see it.

Mr. COLBY. They are very concerned about their vulnerability to aircraft, particularly after something like the Hanoi experience, which had a very sophisticated air defense around it, yet was penetrated without substantial loss. The Soviets, of course, have a national historical fixation on the problem of invasion. They have been invaded and put in very dangerous situations at least twice in the last couple of centuries.

Representative BROWN of Michigan. The general threat would be the Chinese. The Chinese danger of exposure would be more of the kind you are defending against.

Mr. COLBY. They are concerned about air attacks from NATO too, very clearly. They are focused on the NATO threat, they discuss it in their literature,[1] and their military people plan, and hold exercises against NATO. Their major forces are western oriented.

Chairman PROXMIRE. It is so hard for us really to accept that notion because we are told over and over again that they have a preponderance of power. The Warsaw Pact vis-a-vis NATO—NATO is a powerful force, I am sure. But, they seem to have more of almost everything.

Mr. COLBY. They are concerned about it. I remember it as something like 16,000 tanks in their armament in the NATO guidelines area as against about 6,000 on our side.

Chairman PROXMIRE. That is exactly my point. It is hard to understand why they should be so concerned.

Mr. COLBY. Because they went through World War II. That is one of the best reasons.

Chairman PROXMIRE. So did the European countries.

Mr. COLBY. The Europeans are under the American umbrella to a great extent, and feel that the nuclear protection will protect them against that kind of a problem. The Europeans, of course, do not have a totalitarian discipline or society of that sort.

Chairman PROXMIRE. I do not want to dwell on this too long.

My point is we have the nuclear umbrella all right, but they are not defending against that—the ABM system, except in Moscow.

Mr. COLBY. They are countering it. They are countering by this enormous investment in strategic missiles. They have a long-term determination to at least match the Americans.

Chairman PROXMIRE. Let us get into the air defense.

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[1] Excerpts from the Soviet literature, supplied at the subcommittee's request by CIA, may be found on pp. 86.

SINO-SOVIET PROBLEMS

Mr. COLBY. The air defense does show a defensive mentality. Second, however, I think if you look at the Sino-Soviet problem, you will see a considerable increase in their investment in that area. Over the past 10 years they have increased the number of divisions from about 12 to 13, to about 40 in that area. They have more than 1,000 tactical aircraft, over half of them can deliver nuclear weapons. They realize at this point that they do not have the opportunity of a successful first strike in that area. The Chinese have developed the capability to retaliate to the extent that they probably will remain on the defensive posture, rather than offensive.

The Russians are quite frankly, very, very intense in their concern about the Chinese.

SOVIET NAVY

The third area of investment which has grown—and all of these are combined—is the Navy. The Navy has gradually grown. It is not a sharp increase, but it has gradually grown in sophistication and in capability of being present in a number of areas of the world.

They are developing far more than the coastal fleets that they used to have in the Baltic, the Black Sea, the Northern Sea, and in the Pacific. They are developing the capability of being present in the Indian Ocean, the South Atlantic, the Caribbean, the various areas in the Pacific; and they have this concept of the Navy as an expression of national power, national presence, that fulfills the real drive of the Russian policy, which is that they are a superpower with the United States. They must match the United States. They must have all the attributes of a superpower. They must share the role of superpower in all respects in the world.

This you can see throughout their various weapon systems and their politics as well, and policies.

Russia is turning, in a very simple word, or returning, into more of an imperial and perhaps somewhat less of a revolutionary power.

WAR POLICY

Representative BROWN of Michigan. I remember discussing the change when we went from a two-war policy to a 1½-war policy, simply stated, obviously.

The Soviets must have had a two-war policy for a time. The Chinese and NATO, with their extension of becoming such an influence, do they not get into an almost three-war policy?

Mr. COLBY. I would not think they would concede that.

Representative BROWN of Michigan. If we have a two-war policy to spread us a little too thin, we should go to a 1½-war policy. As they invest and expand and do things they have not done before, do they not subject themselves to the problem of being spread too thin, as we thought we were?

Mr. COLBY. They still think pretty much of a two-war policy, but it's a two-war policy, plus a political influence policy. In other words, the use of military for influence as distinct from fighting.

Representative BROWN of Michigan. That would be quite different than if they had expanded quite significantly in the Middle East and Egypt and so on. That was more than political influence.

Mr. COLBY. That was more than political influence. If you push political influence far enough, you do develop military power downstream. You are not there yet, but downstream you do develop the capability of fighting in the Third World, if you will, in that kind of an area. They suffered some rather grievous disappointments in these various projections of their political power. Their subversive effort during the 1950's in Europe and the 1960's in places like Africa and South America proved to be a bust. Their effort to develop relationships with Third World countries like Egypt really was a disaster. They are now going on this theme of having independent imperial power and then using political influence, diplomatic relationships, economic aid, military aid, with selected countries to try to build up their influence, which they do in part as a project of this overall superpower image, in part to counter Chinese inroads in places like Africa.

Representative BROWN of Michigan. Thank you.

COSTS LIKELY TO RISE

Mr. COLBY. Mr. Chairman, the course of Soviet defense spending during the next few years is well defined by programs already underway. The levels of future costs probably will be little affected, at least in the short run, by developments in either the strategic arms limitations negotiations or the discussions on mutual force reductions. Even if these dialogs produce agreements for stabilizing or reducing force levels, it is unlikely that programs already underway would be curtailed.

In the longer term, arms limitations pacts could reduce the pressure to initiate new defense programs. However, even with such agreements, we expect the Soviets to embark on a program of extensive qualitative improvement of their strategic weapons, which should cause the costs to turn up again by the end of this decade.

PART III: THE CHINESE ECONOMY

Mr. Chairman, turning to China, economic information on China is not comparable to that of the U.S.S.R. Since the collapse of the Leap Forward in 1960, no significant body of statistical data has been published. The amount and quality of information varies from sector to sector. Enough is available, however, to analyze foreign trade in some detail and to ascertain trends in domestic output, construction, armaments production, welfare, and economic policy.

PLANNING AND ADMINISTRATION

One fact about the Chinese economy is evident at first glance: The planning and administrative system is an adaptation of the Soviet model. The keystone is state and collective ownership of the means of production.

The Government formulates all policies, and oversees their implementation at almost all levels.

For example, enterprise profits and all taxes are remitted under the state budgetary system, as in the Soviet Union.

The state controls wages of most nonagricultural workers, keeping wage levels in line with available consumer goods and rationing such essential items as grain and cotton cloth.

The central and provincial governments pass down guidelines for the control and allocation of income in rural communes.

Resources are channeled to capital formation and other uses under a planning system administered by units of the central and provincial governments.

As in the U.S.S.R., China has annual and 5-year plans covering production, investment, financial, and other goals of the various sectors of the economy.

Reflecting China's less developed status, however, the plans include many fewer targets, the planning system is much looser, and the statistical system is less well developed than in the U.S.S.R.

Furthermore, I wish to emphasize, Mr. Chairman, the political and economic developments in China have resulted in far greater emphasis on the agricultural sector than has been the case in the U.S.S.R. Eighty-five percent of the Chinese still live in rural areas; unlike the case in other LDC's, there has not been a massive rural to urban flow; and the most recent policy change called for a new wave of investment in support of agriculture.

The top economic policymaking body is the Political Bureau of the Communist Party Central Committee, headed by Chairman Mao as illustrated in figure 16.

[Fig. 16 follows:]

China: Organization of the Central Government, 1975

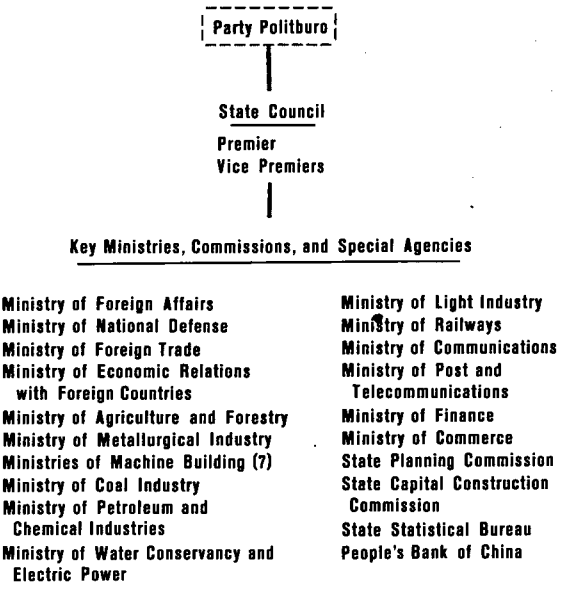

FIGURE 16

Mr. COLBY. Overall responsibility for implementing party policies is handled by the State Council under Premier Chou En-Lai.

Simplified replicas of the State Council also operate at each lower level of government—from the 29 provinces down even to cities, counties, and rural communes.

In factories and mines—in addition to a managerial and engineering staff—there is always a party committee headed by a chairman who often doubles as the enterprise manager.

China has also made important changes—as has the U.S.S.R. in recent times—in the Stalinist policy of priority allocation of resources to development of heavy industry.

SHIFT OF RESOURCES TOWARD AGRICULTURAL DEVELOPMENT

With its huge population and traditional agriculture—which is highly labor-intensive—China's prime goal is to maintain an adequate level of food and clothing for its people.

In the past decade or so, this has meant a major shift in the share of resources toward agricultural development in order to bolster the lagging farm sector.

The most recent example of this priority was the decision in 1972–73 to import—frequently on credit—foreign plants and buy quantities of equipment to produce fertilizer and synthetic fibers.

Peking does not release detailed information about its economic plans. Consequently, we must deduce relative priorities in resource allocation from the general comments of Chinese leaders, and bits and pieces of evidence.

We conclude that a high priority in the allocation of investment resources goes to agriculture and industries supporting agriculture. Also high on the list are certain segments of industry, the military establishment, and transportation and communications.

INDUSTRY

In industry, the favored position of the petroleum and petrochemical industries is clear. An investment shift benefiting coal and iron ore mining, and finishing facilities for steel products, also is taking place.

In transportation, major seaports have had their harbors, wharfs, and nearby rail and road networks substantially improved in order to handle the recent sizable expansion in foreign trade.

From this necessarily general appraisal of resource allocation, we conclude that some development of heavy industry and defense is being subordinated to the laying of a solid foundation for future agricultural development.

GROWTH

It is well to remember, however, that the growth of the Chinese economy has been highly erratic. Production fell sharply during the "Leap Forward," 1958 through 1960 and again during the "Cultural Revolution," 1966 through 1968 as illustrated in figure 17. New periods of turmoil may well punctuate China's economic development in the future.

[Fig. 17 follows:]

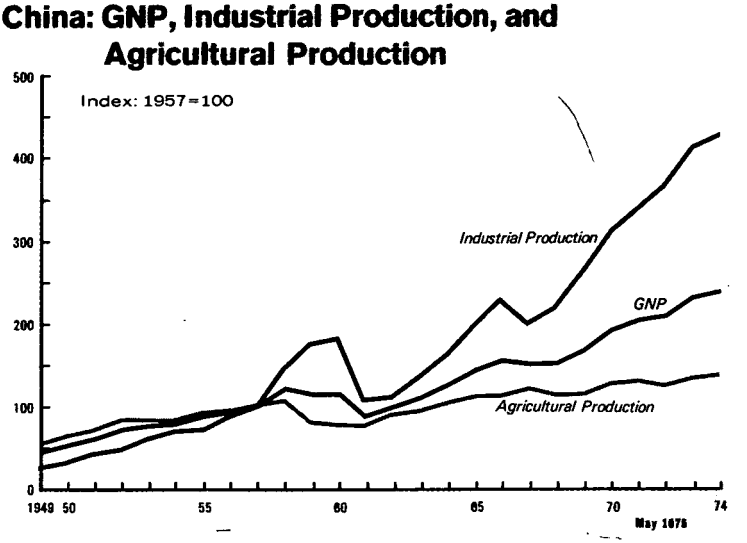

FIGURE 17

CURRENT ECONOMIC DEVELOPMENTS

Mr. COLBY. In his report to the National People's Congress last January, Premier Chou surveyed the mixed performance of the economy in 1974, and suggested that the leadership expects economic growth to be gradual for some time.

Although Chou provided few statistics on either planning or performance, we believe that the Chinese economy grew in 1974 by only 3 percent—down from almost 10 percent in 1973.

INDUSTRY AND AGRICULTURE

Growth in industry slowed to 4 percent from a strong 12 percent in 1973.

Agricultural output barely matched the 2 percent increase in population.

Among the factors holding back industrial growth in 1974 were: Imbalances among the extractive, processing, and finishing industries, highlighted by shortages of coal; sporadic work stoppages, lowered worker morale, and reduced productivity created by the anti-Confucius campaign; and the overburdening of the transportation system, particularly the railroads.

The sharpest decline in industrial production was in steel output, which fell by about 6 percent in 1974 to about 24 million tons. On the positive side, the petroleum industry continued its strong growth, with a 20 percent increase that brought crude output to the 65 million ton level during the year. The production of electric power, tractors, chemical fibers, and cement showed much smaller increases.

Agricultural growth during 1974 was adversely affected by generally unfavorable weather for winter wheat and for fall-harvested grains. Even though grain output rose to about 255 million tons—some 5 million more than in 1973—the authorities had clearly hoped for a larger increase.

FOREIGN TRADE

Imports of grain, which reached 7 million tons in 1974, will continue. Some 4.4 million tons are already slated for delivery in 1975.

China's foreign trade boom fell victim in 1974 to the growing problems of the world economy.

Total trade increased by almost 40 percent to $13.7 billion as illustrated in figure 18.

[Fig. 18 follows:]

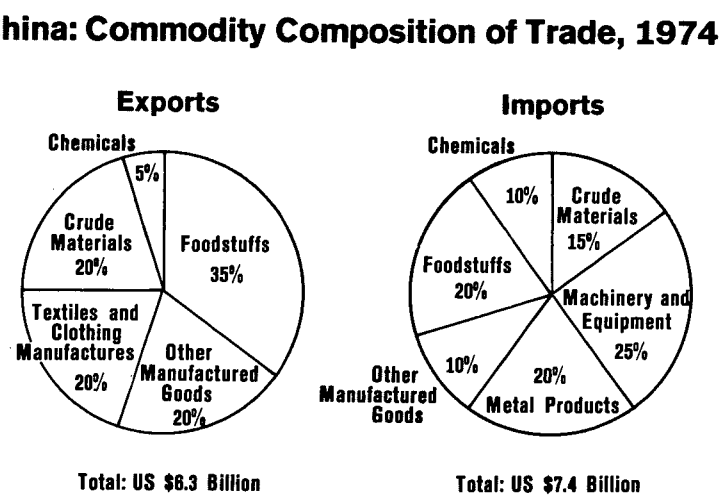

FIGURE 18

Mr. COLBY. Most of the increase was attributable to higher prices, with relatively little growth in volume.

Worldwide inflation pushed up China's import bill, while the economic slowdown in the West cut demand for Chinese exports. This produced the largest trade deficit in China's history—about $1 billion. There was a surplus with the Communist world, but a $1.5 billion deficit with the non-Communist countries that account for almost 85 percent of China's foreign trade. Japan, the United States, and Hong Kong were China's largest trading partners last year as illustrated in figure 19.

[Fig. 19 follows:]

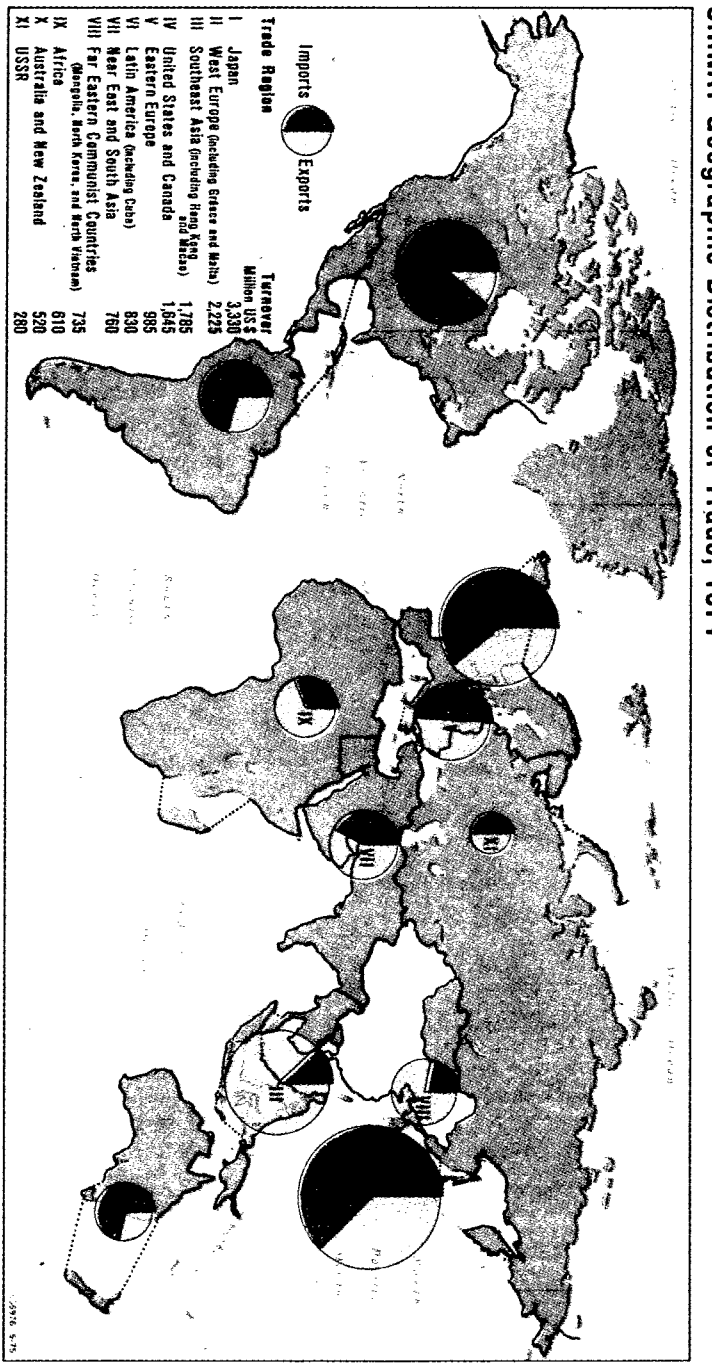

FIGURE 19

Mr. COLBY. As for the composition of its foreign trade, China exports rice, specialty foods, textiles, and a wide variety of handicrafts, light manufactures, and crude materials. In exchange, it imports wheat, cotton fibers, fertilizer, metals, industrial machinery, and transport equipment.

China's trade this year will be tempered by Peking's attempts to reduce its deficit.

Export growth will be small, reflecting weakened demand in the West and poor sales of traditional products at the 1974 Canton fairs.

An expected doubling of petroleum exports may do little more than offset the decline in other areas.

Imports of machinery and equipment will be substantial as large-scale deliveries continue on 1973 and 1974 contracts.

Other, less essential imports will be curtailed and the pace of new plant contracts may slow further.

TRADE WITH THE UNITED STATES

The $700 million surplus enjoyed by the United States in its trade with China in 1974 will be cut sharply in 1975.

U.S. exports to the PRC could fall to one-third last year's level of $820 million, while U.S. imports will probably rise to about $150 million from $115 million in 1974.

China's current low interest in U.S. agricultural products stems from an adequate domestic crop last year, a determination to ease a tight foreign exchange situation, and dissatisfaction with the quality of U.S. wheat, corn, and soybeans.

In contrast to farm products, U.S. industrial exports to China should continue to rise in 1975. Although new orders for U.S. machinery totaled only $15 million in 1974, deliveries under 1973 contracts—notably equipment for eight Kellogg ammonia plants—will peak in 1975.

PREMIER CHOU'S JANUARY REPORT

Premier Chou's January report reaffirmed the development priorities of agriculture, light industry, and heavy industry which have prevailed since late 1972. He reiterated Chinese interest in expansion of trade relations with the non-Communist world.

Chou also announced that the number of economic ministeries and commissions would be reduced—from 40 to 25 and from 12 to 3, respectively. This, coupled with the statements that China is drawing up a 10-year plan in addition to 5-year and annual plans. suggests that the degree of centralized planning and management of the economy will increase.

Chou also singled out the period of the "Fifth 5-Year Plan," 1976 to 1980, as crucial to China's attainment of economic front rank status in the world by the end of the century.

The basic problem remains that of lifting the long-term rate of grain production above the rate of population growth as illustrated in figure 20.

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[Fig. 20 follows:]

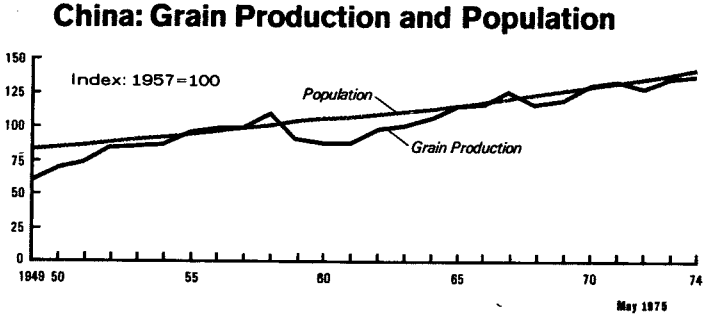

FIGURE 20

Mr. COLBY. Chou clearly implied that this problem would be attacked by expanding industrial inputs to agriculture—including inputs of foreign technology.

In sum, Chou En-lai appears to have charted a course of carefully planned slow growth for the economy over the next 15 years. However, given the inevitable change of leadership, and China's apparent proclivity for radical turns in economic policy, the present moderate approach may be difficult to maintain.

PART IV: THE COSTS OF CHINESE DEFENSE PROGRAMS

Mr. Chairman, I will move to your questions about the Chinese commitment of resources to military programs.

CONVENTIONAL FORCES

China's military policy has called for maintaining large conventional forces, and small—but growing—nuclear deterrent forces. China's ground forces—the world's largest—have more than 3 million men, and are organized, equipped, and trained mainly to fight a conventional war on Chinese territory. The air force consists largely of obsolescent, short-range fighters, while naval forces are configured primarily for coastal defense.

STRATEGIC FORCES

But China has also developed nuclear weapons and built a small force of manned bombers and a few medium and intermediate-range ballistic missiles capable of being delivered to most of Asia. Longer range land-based missiles as well as a submarine-launched ballistic missiles are under development.

[Deleted.]

Another land based missile that the Chinese have been working on very slowly has a 7,000-mile range, which would allow it to reach the United States. We do not expect anything of this nature before 1978

or 1979 at the very earliest, but that is the current situation on those subjects.

An appraisal of the impact of China's military effort on the economy is best made by dividing the discussion into two parts—defense operating costs, and defense procurement costs.

OPERATING COSTS

Defense operating costs probably have little impact on the economy, largely because of China's extensive use of its plentiful and inexpensive manpower. Moreover, direct operating costs are further reduced because the armed forces produce perhaps as much as half of their own food supply and assist civilians in planting and harvesting. The armed forces also help build roads, railroads, canals, and water conservation projects.

PROCUREMENT COSTS

Military equipment procurement costs, however, impinge directly and heavily on the economy. The term "procurement" as we use it here includes only the cost of producing arms and equipment, not any costs associated with research, development, and testing programs. We hope to be able to present the resource implications of the military R.D.T. & E. effort in the near future.

As we reported to this committee last year, Chinese military procurement grew very rapidly in the late 1960's. After 1971, however, overall military procurement fell substantially. During the 3 years 1972 through 1974, procurement has remained at a plateau about equal to the 1969 level as illustrated in figure 21.

[Fig. 21 follows:]

CHINA: Growth of Military Procurement and Industrial Production

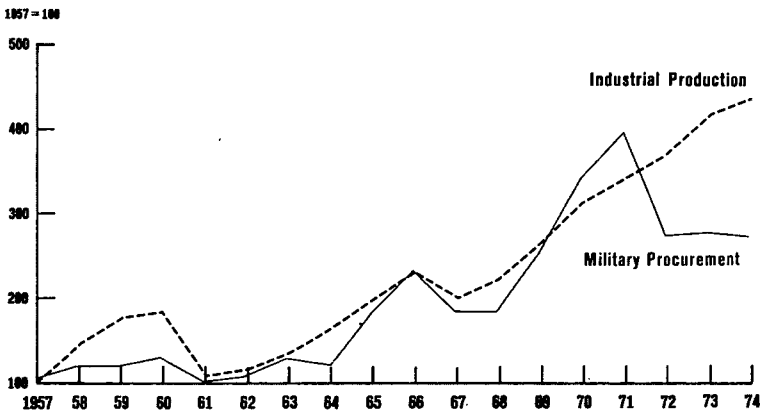

FIGURE 21

Chairman PROXMIRE. Is that figure classified?

Mr. COLBY. No, sir, it is not classified.

Chairman PROXMIRE. All right.

Mr. COLBY. Much of this decline reflects a sharp curtailment in aircraft production, but other weapons production programs have also slowed.

Lower levels of procurement do not mean a reduction in Chinese forces, but rather that new equipment is being delivered to the forces at a slower rate.

The reasons for this decline still are not clear. The primary factors probably were: Détente with the United States, and a reduced likelihood of armed conflict with the U.S.S.R.; new priorities favoring civilian economic growth by a less military-oriented leadership; and an inability to develop follow-on advanced weapon systems.

DEFENSE BURDEN ON ECONOMY

Our measures do not yet give a good sense of the absolute level of outlays in Chinese cost terms. Still, some understanding of the defense burden on the economy can be gained by comparing the index of military procurement—priced in dollars—with the index of growth in industrial production, as shown on the figure.

You can see that, throughout the 1960's, the trend in military procurement generally conformed to the trend in overall industrial output.

Chairman PROXMIRE. Is there any indication that that drop may have been anticipated by Chinese leaders and under the economic circumstances they did not have much choice; is that one of the reasons why they agreed to a détente with this country?

Do you have any indication of that?

LIN PIAO PROBLEM

Mr. COLBY. I think our judgment is a little different; it is connected to some extent with the Lin Piao problem and the end of the dominant position of the military in China.

Chairman PROXMIRE. My question is not did the military procurement drop because of détente, but the reverse, recognizing that they would have to cut back on their military procurement, they thought they needed another friend in the world, and they better see what they could do about trying to neutralize us.

Mr. COLBY. Perhaps that was a longer term thing. I think the growth of Soviet power in Siberia certainly did worry the Chinese a great deal in the late 1960's and certainly that had a lot to do with the willingness to open relationships with the United States.

Chairman PROXMIRE. I see.

Mr. COLBY. Since 1971, however, military procurement has fallen significantly behind.

Procurement funds may have been diverted to military R.D.T. & E. However, the expected new missile and aircraft systems have not yet made their appearance.

PROSPECTS FOR THE FUTURE

As for the future, Chinese defense spending during the second half of the decade probably will increase, because of the expansion of the land-based strategic missile force, deployment of a new sea-based ballistic missile system, and the introduction of new aircraft.

The present general ordering of military versus civilian priorities, however, probably will persist through this decade even if Mao passes from the scene.

The basic rationale for this ordering—the high cost and technical difficulty of a more ambitious strategic weapons effort, and urgent need to develop the agricultural and industrial sectors—will continue to influence Chinese decisionmakers through this decade and beyond.

Part V: Resource Allocation Comparisons

Finally, to put these questions of resource allocation into perspective, I will compare per capita consumption, industrial production, and military procurement in China, the U.S.S.R., and the United States. I should point out that comparisons of this sort are difficult to construct even among countries that make economic information freely available and that are at a roughly comparable level of development. Therefore, the comparisons should be considered to be only rough orders of magnitude.

In 1973, an average Soviet consumer received only one-third and a Chinese consumer perhaps one-twentieth as much as his U.S. counterpart as illustrated in figure 22. In part, this reflects conscious decisions on the part of Soviet and Chinese leaders to defer consumption in favor of investment in order to stimulate economic growth.

Despite the Soviet leadership's persistent concentration on industrial growth, aggregate industrial production in the U.S.S.R. still falls far short of the U.S. level as illustrated in figure 23.

[Figs. 22 and 23 follow:]

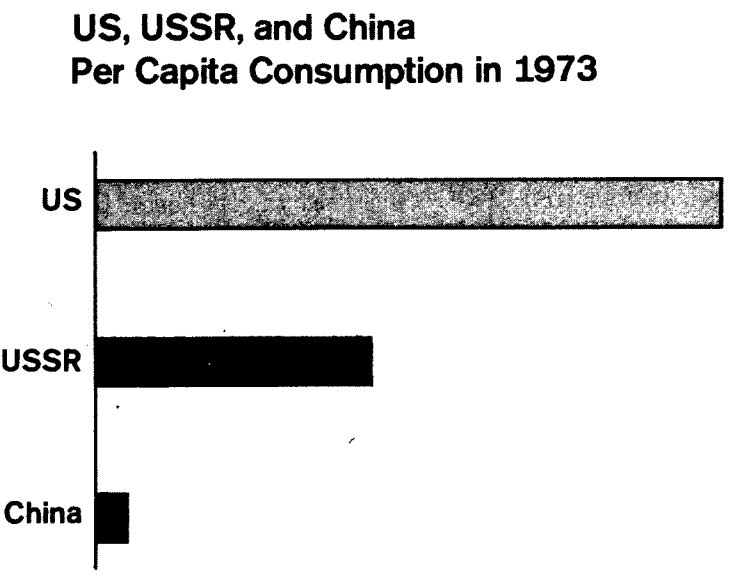

Figure 22

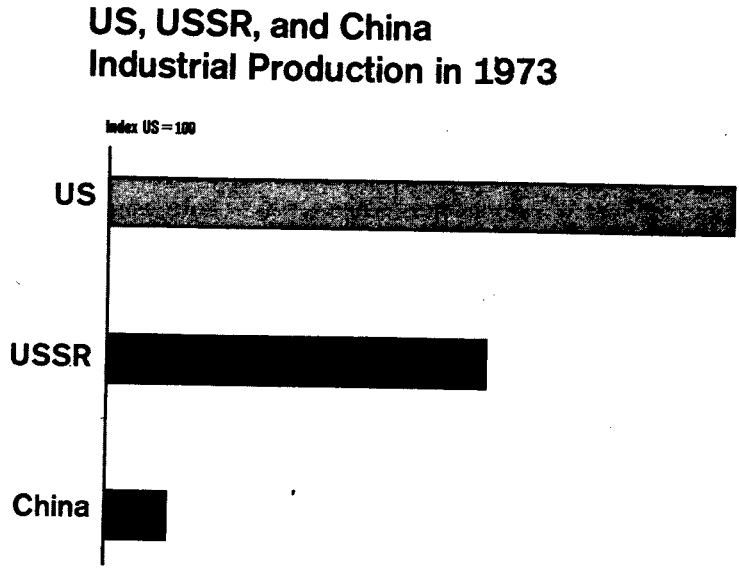

FIGURE 23

Chairman PROXMIRE. That represents a considerable improvement, say, over 20 years ago.

Mr. COLBY. Very much so, yes and that affects a steady portion of considerable resources and percentage of their effort into the investment process and its stability within the Soviet Union as well.

Chairman PROXMIRE. There would be some change in 1975 with a recession but it would not be very great, would it?

Mr. COLBY. I do not think it would change it that much.

However, Soviet output of some products such as steel, coal, cement, and simple machine tools approaches or exceeds U.S. production.

Chairman PROXMIRE. The reason I say that is I have been making a series of speeches of what is right about the United States. One of the things I pointed out is the income in our country has increased despite all the failings in some ways that we are doing very well, and one is that the per capita income in real terms has gone up over the last 20 years very greatly. The U.S.S.R. must be where we were 20 or 30 years ago, which is a remarkable achievement.

Is that right?

Mr. PROCTOR. If you would look at this column you will see that total Soviet GNP is about equal to what ours was in 1955 as illustrated in figure 1.[1]

Chairman PROXMIRE. On a per capita basis that would change quite a bit. Their population in 1974 is substantially bigger than our population in 1950.

You have to compare the populations at that time. Per capita GNP for the U.S.S.R. would be substantially lower than for the United States in 1950.

[1] See fig. 1, p. 5.

Mr. PROCTOR. A good statement would be the U.S.S.R. is where the United States was sometime in the early 1940's.

Chairman PROXMIRE. Is that right? That is amazing.

Mr. PROCTOR. Yes. In GNP per capita.

Chairman PROXMIRE. You wonder why the dickens this is. They do not have the automobiles, they do not have the housing. So much goes into defense.

Mr. COLBY. The next figure is quite a dramatic showing of this.

Production for military purposes has always had a leading position in Soviet and Chinese industry. As you can see, with a smaller industry than the United States, the U.S.S.R. was able to support a larger military procurement program in 1974 as illustrated in figure 24.

[Fig. 24 follows:]

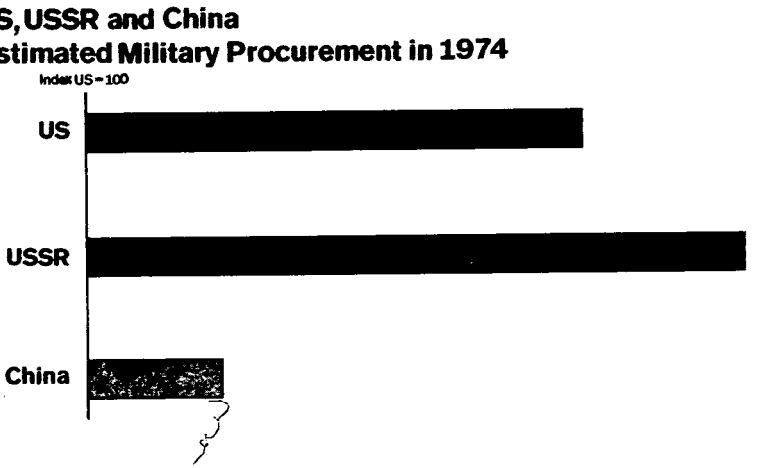

FIGURE 24

Chairman PROXMIRE. Let me interrupt again to say that is what puzzled me about your statistics. One of the first questions I asked, I wondered what in the dickens that they are doing with all that steel. A lot of it is there, but even there it seems to me they do not have automobiles like we do. They do not have the highway system we have. They do not have the housing construction or anything of that kind.

If they are producing more steel, how can they use it?

Mr. NOREN. They have such an investment program——

Chairman PROXMIRE. More than ours in machine tools, for instance?

Mr. NOREN. In terms of absolute size their fixed investment approaches our now.

Chairman PROXMIRE. Thank you.

Mr. BURTON. They are also very inefficient users of steel. Their machines are very heavy compared to ours.

Chairman PROXMIRE. The military weapons systems are usually heavy too.

Mr. BURTON. Yes.

Mr. PROCTOR. One remembers Khrushchev's cursing of the manufacturers as metal-eaters. He had a campaign to reduce the waste of

steel, especially in the manufacture of both military and civilian hardware.

Chairman PROXMIRE. Thank you.

Mr. COLBY. Mr. Chairman, in China, the industrial base generated military procurement at one-fourth the U.S. level.

That completes my statement, Mr. Chairman. We would be very happy to answer questions.

NO 5-YEAR PROJECTIONS

Chairman PROXMIRE. You said in response to my April 24 request that you do not have 5-year projections.

Mr. COLBY. No.

Chairman PROXMIRE. Has the CIA ever prepared such projections? Why would it not be feasible to do so? We require it of course.

Mr. PROCTOR. You must realize that our estimate of Soviet expenditures is based on what we see in the field, either existing or being built.

Chairman PROXMIRE. One of the things you told us, however, in the course of this briefing was it was very unlikely that there would be much of a change even if there is an agreement reached, that the change would be quite prospective and quite far on.

Mr. COLBY. We do project certain specific weapons systems and things of this nature. We have a clear projection, for instance, on strategic attack missiles and things of this nature.

Chairman PROXMIRE. Why could you not make projections, though, subject to the same kind of modifications of our own and maybe more, but give it to us for 5 years?

Mr. COLBY. We have such a weak information base on certain parts of it. We think that we could cover that, on a more or less, contemporary basis; as you push it out into the future, it tends to get more difficult.

Mr. PROCTOR. You have to make some assumptions about what the military program is going to be.

Chairman PROXMIRE. If you can accept what you are telling us what it is now or what it was last year, it seems to me you might have a stronger basis than you would in this country where we have a Congress that disagrees with the President, which can seriously affect our procurement.

Mr. PROCTOR. The problem is with new programs. They change through time. There are cyclical elements in Soviet procurement and in fielding of new weapons that make quite a bit of change in expenditures. The rate of growth has not been constant through time. There have been changes in the rate of growth, ranging from almost none to almost 6 percent. It is cyclical.

Chairman PROXMIRE. Would it be possible to make assumptions, two or three kinds of assumptions and make those projections based on those assumptions?

Mr. COLBY. Let us commit to take a look at it and come back on it to you.[1]

Chairman PROXMIRE. We would appreciate it.

Mr. PROCTOR. As to why we can or cannot—I would like to explain as clearly as I can what the problems are.

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[1] See Mr. Proctor's letter to Chairman Proxmire, dated Sept. 5, 1975, pp. 89–90.

One could make almost an infinite array of assumptions about Soviet weapons systems and programs beyond the next 2 years. That is where the problem is.

Chairman PROXMIRE. On the simple assumption that the situation that continues about as it has in the past.

Mr. PROCTOR. We could give you total numbers which, in effect, say costs will grow at the same rate, a lower rate, or a higher rate, within the range of historical precedent.

Chairman PROXMIRE. It would not be that simple minded. You know there are some weapons systems that are not increasing. You indicated some. They are not building any more of them. You know of others where there is an increase and will continue to be.

Mr. PROCTOR. We can project expenditures with confidence for about 2 years.

Chairman PROXMIRE. We would not expect you to take the figures of 1971, 1972, and 1973 and draw a line and say, therefore, we are going to have that continue because obviously you would not have that.

Mr. COLBY. We will give you an answer.[1]

Mr. PROCTOR. I do not see what we could do that would be very helpful much beyond 2 years.

Chairman PROXMIRE. Think about it. Maybe you will say no, but think about it.

Mr. COLBY. We will give you an answer.

COST ESTIMATE OF SOVIET SST

Chairman PROXMIRE. You have made estimates on all kinds of weapons systems. Why is it not possible to estimate the cost of the Russian SST, TU-144?

Mr. PROCTOR. This was requested. We do not have any basis for making an estimate of the research and development costs of the Soviet SST. It is a vehicle that is not being produced in any volume. There is no basis, really, for making anything but a very rough estimate of about $50 million each, excluding R. & D. That is as good as we can do.

Chairman PROXMIRE. That is helpful. I am glad to get even that.

Mr. PROCTOR. That would be just for production.

MIG-23 COMPARED WITH F-15

Chairman PROXMIRE. Very rough. I understand that it would have to be highly qualified. You estimate the dollar cost of the MIG-23 at $3 million, not including R.D.T. & E. or spare parts. What is puzzling to me is that the closest U.S. counterpart is the F-15 of about the same size. I understand they look alike, and cost about $15 million each for the American plane, the F-15.

It seems to me even if you took out the F-15's R.D.T & E. cost and the initial spares, that it would still cost far more than the Mig-23. How do you explain that difference?

Mr. PROCTOR. I cannot do it here.

Chairman PROXMIRE. Why? Is it classified?

[1] Classified material has been supplied to the subcommittee.

Mr. PROCTOR. No, I do not have the data with me.

Chairman PROXMIRE. Will you give it to us for the record?

Mr. COLBY. We will answer that for the record, if we may, Mr. Chairman.

[The following information was subsequently supplied for the record:]

Our cost estimate of $3 million for the MIG–23 is an estimate of the average unit cost in 1973 dollars assuming a production run of 1,000. The estimate does not include R. & D. costs or the cost of initial spare parts.

The projected costs to the U.S. Air Force for purchasing its fleet of F–15's vary from one source to another. In the costs reported in the press, the $15 million per aircraft figure appears to refer to the cost of procuring F–15's with initial spares and support through fiscal year 1976, expressed in fiscal year 1975 or fiscal year 1976 dollars. The projected F–15 production through 1976 is approximately 250 aircraft.

When the MIG–23 estimate is adjusted to reflect a similar production run and to include initial spares it is closer to the F–15 cost. Our estimate of the average dollar cost for the MIG–23 at 250 units is $5 million in 1973 prices. In 1976 prices the costs would be $6 to $7 million per aircraft.

The difference between the $15 million estimate for the F–15 and the $6 to $7 million cost estimate for the MIG–23 may be accounted for by the R. & D. amortization in the F–15 cost and differences in the characteristics and performance of the two aircraft. We do not know how much of the $15 million represents R. & D. costs. We do know, however, that there are significant differences between the performance characteristics and equipment complements of the F–15 and MIG–23 aircraft.

The F–15 is a more capable and more technologically advanced aircraft than the MIG–23. For similar configurations, the F–15 exceeds the MIG–23 in gross take-off weight (almost 30 percent), payload (almost 90 percent), fuel capacity (over 24 percent), and maximum speed at 45,000 feet (almost 10 percent). The F–15 employs two turbofan engines rated at 25,000 pounds of thrust each compared to one engine of 25,000 pounds thrust on the MIG–23, giving the F–15 a 35 percent greater thrust-to-weight ratio. The F–15 can outturn and outaccelerate the MIG–23 through most of the flight envelopes of both aircraft.

The F–15 also has better avionics and armament. The F–15 carries a pulse-doppler air-intercept radar which gives it a "look-down shoot-down" capability. Although the MIG–23 radar is clearly an improvement over earlier Soviet radars, it is inferior to the F–15 in terms of detection range and low altitude performance. The F–15 has an inertial navigation guidance system which is years ahead of known Soviet technology and clearly superior to the MIG–23 navigation equipment. The F–15 also has an extensive electronic warfare package which allows it to detect and jam Soviet air defenses while the MIG–23 carries an EW package that is primitive by U.S. standards.

These equipment differences between the F–15 and MIG–23 aircraft would undoubtedly result in a substantial difference between the actual F–15 cost and the cost that would be incurred if the United States were to build the MIG–23.

Chairman PROXMIRE. I understand that MIG–21's have a very low maintenance cost. Could you comment on this and tell us how it squares with the maintenance costs of the MIG–23?

Mr. COLBY. May I provide that answer for the record?

Chairman PROXMIRE. Yes.

[The following information was subsequently supplied for the record:]

It is correct that the data on the MIG–21 indicated a relatively low maintenance cost for that aircraft. It should be pointed out, however, that the aircraft on which we have hard information was an early model which first came into service in 1961 and has not been used by the Soviets since the late 1960's. The later model MIG–21's which are currently in service are more complex and, consequently, require more maintenance.

We do not have sufficient information to make any rigorous comparison of the maintenance costs of the MIG–21 and MIG–23. The MIG–23 is a new aircraft in the initial phase of deployment. Because of its newness we have not yet been able to acquire much direct evidence on its maintenance characteristics. The MIG–23 is clearly a far more complex aircraft than the MIG–21, however, in terms of avionics, airframe, and armament. Our best estimate, admittedly rough, is that the MIG–23 will require about twice as much effort to maintain as the MIG–21.

Chairman PROXMIRE. You say in your response to my request in an April 24 letter, the fifth request I made in that letter, that your next estimate of the dollar costs of the Soviet defense activity is in preparation, will be in 1974 dollars.

When will that estimate be complete and would you provide me with a copy of it when it is completed?

Mr. COLBY. It will be done in the fall. It is what this one is, the annual estimate. If you would like to have this hearing earlier, or if you would like to have the information before the formal hearing here, we can certainly make it available as soon as we get it.

Chairman PROXMIRE. We would like that. Fine.

EFFECTS OF INFLATION AND INEFFICIENCY

The rest of your response to that question which asks were there any allowances made for inflation or inefficiency due to bottleneck shortages or Government redtape, seems to be rather incomplete.

What about these factors in the Soviet economy—price changes, bottlenecks, shortages, redtape? Do you make any allowances for them in your estimates?

Mr. PROCTOR. Since our estimates are in constant dollars, we try to eliminate the effect of inflation to get an index in terms of constant dollars. We do, to the extent possible, try to reflect these kinds of difficulties in the ruble cost. To say that we take account of these difficulties explicitly would be very misleading. We do not.

Chairman PROXMIRE. We know that the Soviet economy and the Soviet industrial setup in many respects is less efficient than ours. We know we have bottlenecks and shortages and all kinds of problems. They must have something of the same thing.

Mr. PROCTOR. They most certainly do.

Chairman PROXMIRE. How do you allow for that?

Mr. PROCTOR. As I said, not at all explicitly.

Chairman PROXMIRE. Does that not mean a distortion?

Mr. PROCTOR. That would mean an under statement of the estimates that we have made of Soviet costs and would tend to offset the effects of what I called earlier the index number problem.

The Soviet prices, in general, are supposed to reflect the cost of production.

Chairman PROXMIRE. Except for the output. They are getting less output, getting less of a product if we allow for the fact that they have these problems of waste and redtape and slowdowns and so forth.

Mr. BURTON. These costs are theoretically captured in the ruble price. If they are inefficient because of bottlenecks, items cost more, and that is what our ruble price is supposed to say conceptually.

Chairman PROXMIRE. Do you not have to make some assumptions in computing it? How do you arrive at your ruble price?

Mr. BURTON. We apply ruble-dollar ratios to our dollar cost estimates. These ratios reflect average relationships for each category of goods.

Mr. PROCTOR. This has been explained quite a bit in some of the responses to questions and other material we have provided your staff.

[Deleted.]

ORGANIZATIONAL CHANGES WITHIN INTELLIGENCE COMMUNITY

Chairman PROXMIRE. Last year the Board of National Estimates was replaced with a different system for producing national intelligence estimates. I understand instead of the collection of top-level analysts producing the NIE, now certain individuals are selected for primary responsibility.

Is that correct?

Mr. COLBY. Mr. Chairman, that was a couple of years ago. Essentially, yes. The previous Board of National Estimates was a group of generalists who were competent in a wide variety of subjects. They operated as a corporate body and to some extent with certain specialties among them. They had their own separate staff. They drafted the estimates, consulted the other members of the community for their views, and then redrafted and published the estimates.

That system was inadequate, in my view, for two reasons. One, I had some concern with the tendency to compromise differences and put out a document which was less sharp than perhaps was needed in certain situations. Second, I believed that I needed the advantage of some individuals who could specialize in some of the major problems that we face around the world and look at those problems not just as estimative problems, but as broad intelligence problems. They could sit in my chair, so to speak, and look at the full range of an intelligence problem: Are we collecting enough? Are we processing the raw data properly? Are we spending too much money on it? Are we organized right to do the jobs?

And so when I got a problem dealing with, say, China, I could give it to that individual to assemble the talent throughout the community at the working level directly. He gets them to study and argue about the problem, whether it is a substantive problem or collection or production or other problem.

This in my mind has been a help in the performance of my duties because it has enabled me to have this single expert who can look at the total problem for such things as major geographic areas like South Asia, the Middle East, and Latin America, or major substantive problems such as strategic weapons, general purpose forces, economic intelligence, things of this nature.

Chairman PROXMIRE. Do any military men work on the NIE dealing with Soviet or Chinese military estimates?

Mr. COLBY. A large number of military men worked on it in a number of ways. The basic information, of course, is collected by a wide variety of people who contribute— the attachés, for example, the various technical collection machinery, the Air Force people run airplanes, other people run radar, and so forth. This raw material is then submitted.

Chairman PROXMIRE. What I am trying to find out—I understand the present situation is your fixed responsibility on a specific individual to assemble a team, to get your information. The question is, would that individual who you assign to this be a military person?

Mr. COLBY. In most of our estimates the officer, the national intelligence officer, this individual charged with it is a civilian. There is one who is a military officer, a rear admiral, in charge of the general purpose forces. He has had extensive intelligence experience, and he has been operating not as a military man but again as a member of my staff reporting to me directly.

The one on strategic weapons is a civilian, a CIA employee. When they gather together to draft the estimate, someone is assigned to create the first draft. In the strategic weapons field, this is normally done by the CIA. We have on a few occasions asked DIA to develop the first draft.

Out of the estimates, generally, all the estimates, I think CIA produces the basic draft of about 80 percent of the estimates.

Chairman PROXMIRE. Would you say the military had more or less a say, or is there any difference about the estimations than they did before?

Mr. COLBY. I would say about the same.

Mr. PROCTOR. It is an intellectual process of discussion, evaluation, conflict of views in which agreement may come out or disagreement may come out.

Chairman PROXMIRE. I understand that. My question is, is there greater military influence than there was before?

Mr. COLBY. No. I do not think so.

Chairman PROXMIRE. That may be good or bad. I just want to know.

Mr. COLBY. I am conscious of the fact that the estimate is my estimate. There is no voting. Nothing like that. I am required and have made a conscious effort to encourage the presentation of alternate appraisals. The estimate indicates what is my appraisal and what are the appraisals of certain others.

DEFENSE INTELLIGENCE AGENCY

Chairman PROXMIRE. I understand General Graham of the Defense Intelligence Agency wrote an article in which he said that he thought it was time for the Defense Department to assure the primary role of estimating foreign military activities.

Do you agree, and have they made any move to take over the intelligence function of CIA?

Mr. COLBY. That was written in 1972 or 1973. The basic theme of that article was that the military had abdicated the estimating field to the civilians because they had not done a very good job. His theme was that the military should do a better job, at which point they could get back in their hands more of the chore. I agree that if they will do a good job satisfactory to me, then we should benefit by that kind of manpower put to that problem.

However, I also agree that we need independent reviewers of these military estimates who can advise me whether they agree with the military assessment.

Chairman PROXMIRE. What I am more concerned about is when you get an estimate from the military which is self-serving. We know one of the things that happens just as sure as the flowers bloom in the spring is as Appropriations Committees begin to consider the Defense appropriation, all of a sudden they discover something going on over in Russia, a big missile development, which means that we would need something to counter it. It happens inevitably. I do not mean that there is any dishonesty, but there is a clear conflict of interest when you have the Defense Department telling you what the other side is likely to have which would justify more appropriations for them.

INDEPENDENCE OF CIA

Mr. COLBY. CIA was set up in 1947, Mr. Chairman, with the basic concept that it should be a Central Intelligence Agency, independent of State Department policies and Defense Department weapons programs. It has very jealously maintained the position of being an independent voice in assessing foreign situations. That is totally unchanged, and I believe that our analysts are very strong in the position that their job is to come to an objective assessment. The military participates in this process of trying to determine how many tanks there are, how many strategic weapons there are. But perhaps I can help solve this problem, and I have tried, if we can serve the Congress on a more regular basis than just once a year or so. Then I think the arrival of that new Soviet submarine may not coincide with the arrival of the defense appropriations bill. It may be an independent event that just happens in the course of the foreign development and not be just arriving on your table smack at the time that the appropriations are up.

In that sense I look forward to better ways to serve the Congress with the substantive results of our intelligence as you have encouraged in this committee.

Chairman PROXMIRE. I heard that the DIA circulated a paper urging that they take over CIA's human resources overseas.

Is there any truth to this?

Mr. COLBY. I never heard of such a paper, no. I am quite sure that actually the opposite is pretty much the case. Certainly there is no desire by anybody to have the attaché system rest anywhere than on the Defense Department.

But, there have been some questions raised about the degree to which the military should be running clandestine operations abroad. There are very few of those. They are run under a very tight coordination with the CIA people in that area.

The main justification for military clandestine collection is, very frankly, to meet the needs of the local area commander and the development of the trained base which will allow the military to expand these activities in time of war.

I have heard no talk about taking over the CIA's clandestine activities abroad.

Chairman PROXMIRE. Why do we have to have both independent service intelligence agency units and DIA?

Mr. COLBY. That is the Department of Defense's problem. They have endeavored to divide the function among the services and DIA

so that there is no duplication at the DIA level of what is done at the service level. For instance, the attaché system is run by DIA. The services contribute Air Force, Army, Navy officers to it. But it is run as a single service. Similarly, the cryptographic program is run as a central program by the Defense Department, even though you have cryptographic programs and electronic programs run in the Army, Navy, Air Force, and also NSA.

Looked at as a whole, it makes a package where certain jobs are allocated to certain services.

Analytical Capabilities Under Strain

Chairman Proxmire. In the last 6 months, the CIA has been under the greatest fire in its history. We, of course, know about the articles in The New York Times, followed by a series of investigations, the Rockefeller investigation, the Church committee, the Nedzi committee.

Have the Agency's analytical capabilities been in any way compromised or adversely affected, or hampered in any way by the current controversy regarding the CIA?

Mr. Colby. I think my view is that the Agency's analytical capabilities have been put under strain by some of this kind of development, the kind of public criticism, and some of it not very informed public criticism. Some of the excitement has rubbed off on the families of our analysts who wonder what they really do in the CIA as distinct from the merely analytical function.

I think that the people in the CIA, it has been my impression that they are very loyal and dedicated groups of people. They are continuing to do the independent assessment that they have been asked to do. You might ask some of these analysts here, Mr. Chairman, what they think.

Chairman Proxmire. Before I do that, have you lost any key personnel or anything like that that you feel might be a result of that?

Mr. Proctor. Not many, if any.

Mr. Colby. I cannot think of any in the analytical field.

Mr. Proctor. There have been people who have left over the last 2 years through retirement.

Mr. Colby. There have been these enormous retirement incentives in the pay structure in the last 2 years.

Chairman Proxmire. That has happened everywhere in the Government.

Mr. Colby. That has happened everywhere in the Government, and that has affected the CIA.

Representative Brown of Michigan. May I expand on the chairman's question?

Access To Information

He asked about analytical ability. What about access to information?

Mr. Colby. That is a serious problem, Congressman Brown. We are having very great concern expressed by agents overseas, by American citizens contributing information to us. We have a number of American companies that have confided to us, who have said that they will no longer do so because they cannot afford the risk of being exposed

as being associated with CIA, and I have a number of foreign intelligence chiefs who have shared very sensitive information with us because of the relationship we have established, who have indicated great concern as to whether we can keep secrets and whether their collaboration with us will become known and become a political football in their country. Agents have quit.

Chairman PROXMIRE. So far, however, you have not had any of this cooperation which is so essential in our view, in all of our views, I am sure, in national defense compromised, have you?

Mr. COLBY. Sir.

Chairman PROXMIRE. You have not had any American citizens who cooperate with you and have been exposed?

Mr. COLBY. Yes, there have.

Chairman PROXMIRE. You have?

Mr. COLBY. Yes. There have been people exposed. Mr. Agee wrote a book recently in which he put in a handy-dandy——

Chairman PROXMIRE. I am not talking of that. That kind of thing has happened for years.

Mr. COLBY. No, it has not, I beg your pardon.

Chairman PROXMIRE. You had a series of books written on the CIA.

Mr. COLBY. They did not normally expose our sources and our methods to the degree that we are now suffering, and we did not have the outcry about CIA and the sensational treatment that has very seriously affected us.

I was just reading yesterday a message—a message from a foreigner—I will not identify him any further—with whom we have worked for several years. He was going back to his homeland, and he has just announced—and his homeland is a target of some importance to us—that he will not work for us in his homeland; he will not take the risk because he is afraid of exposure. We lost a source in a very difficult area.

Representative BROWN of Michigan. Did you not start to say when we were questioning you that agents have quit?

Mr. COLBY. Yes, this one did. He has just said he will not work with us when he goes back to his homeland. We have had a number of others.

Chairman PROXMIRE. Let me ask, you were asking some of these other gentlemen here——

Mr. COLBY. The analysts, yes.

Chairman PROXMIRE. How has this affected you?

Mr. PROCTOR. I am Deputy Director of Intelligence. As such, I am responsible for supervising most of the analytical resources for the Agency in the sense you are talking about. As far as the output is concerned and devotion to their duty, I have seen no change whatsoever. As far as being concerned in the sense that Mr. Colby related about family reaction and friend reaction, there has been concern.

The general public does not make a distinction between analysts and covert operators and things of that sort. The kinds of things that are being said are very generalized, and to some extent uninformed, and it has an impact on morale with respect to association with the Agency. Clearly it has not affected our product yet, and I hope that it will not do so over the next 9 months or so while the investigations continue.

Clandestine Operations Criticized

Chairman Proxmire. If I could continue this for a moment, in a democracy of our kind, I do not think you would expect not to have criticism. But, is it not true that the criticism has been directed at the difficulties that have been caused, to a considerable extent, by the clandestine operations, not by the analytical operations? I know of no criticism by anybody that your analytical operations have been any abridgment of civil liberties, civil rights, or interference with them. I have heard nothing but praise for the high quality of them, their objectivity, their great utility, when we get other estimates that are self-serving.

Mr. Colby. There have been some articles to the contrary.

Chairman Proxmire. They may think you are wrong, and I am sure you do not object to that position, nothing saying that that part of your operation is anything that is un-American or is destroying American rights.

Nature of Intelligence

Mr. Colby. Mr. Chairman, the most serious problem we have at this moment, I am afraid, is the problem of what is intelligence; because intelligence was set up in this country in 1947, reflecting the tradition of intelligence that nations conduct, but do not talk about intelligence. We wrote the laws very broadly and except for the last few years supervision was sporadic and sympathetic, no question about that. The fact is, however, intelligence over these years has changed enormously. American's perceptions of intelligence have also changed, and the perceptions of propriety have also changed. The things about intelligence that were thought of as quite logical and likely in the early 1950's would be rejected today, and in my view should be rejected today.

The fact is that following that broad brand of authority without very much supervision, various missteps were made and wrong things were done during these 28 years. I frankly do not think there were very many when you compare the authority given and the degree of challenge that the country and the Agency was put to, the climate of opinion in the country at the time of various activities, what was expected of intelligence.

The fact is that intelligence has changed enormously. We are faced with a 25-year history of people listening to Saturday night TV spectaculars about James Bond. During that same 25 years we have built up an enormously effective analytical capability. We have changed the nature of intelligence through technology. We have disciplined our clandestine operations, and we have in the last few years substantially reduced our covert political and para-military activity in conformance with national policy at this time.

Sources of Intelligence

Chairman Proxmire. Is it not true, as far as your analytical capability is concerned, that the overwhelming proportion of your information comes from technical and mechanical surveillance and from literature of other countries? And nobody disputes your obligation to do that.

Is clandestine collection relatively marginal?

Mr. COLBY. We should not look at it in numerical terms. If you count pieces of paper, you come to an unreal appreciation.

Certainly technology has revolutionized the intelligence business. We use to have to worry about how many missiles the Russians might have. Now we can count them. We used to wonder what their characteristics might be. Now our electronics can help us find out how big they are, how fast they go, all the rest of it. And certainly we do exploit the open material. But, Mr. Chairman, the Soviet Embassy can walk downtown and buy a copy of Aviation Week in this country, and for $1 or $2 they can learn facts about our weapons systems that cost us billions of dollars to learn about theirs through technology. The things that they get for 20 cents by reading the New York Times or the Washington Post accounts of the debates in our country or the way we do our business in the open, we have to get by having an agent who can report what that kind of Soviet discussion is all about because they do not conduct open hearings. They do not conduct open debates in their country. They do make some public speeches; but they are very careful about what they say in public as distinct from the reality of their policy-level discussions in private.

It is only through secret intelligence that we are able—and I stress, we are able—to get a glimpse of the political dynamics which dominate that society.

Chairman PROXMIRE. What concerns me is the reliability, the accuracy, the provability of the intelligence you get from technical collection and even from analysis of literature and so forth. It is likely to be a good thing, considerably higher than what you get from a defector or traditional James Bond notion of a spy who sneaks in and snatches this or that or overhears a conversation—the kind of things we think about from our TV spectaculars.

Mr. COLBY. The fact of the improvement in the technology has enabled us to handle the kind of information we could get through the agent in a manner so that we can determine much better now the reliability of that agent as a real source. If the agent comes in and tells us that there are 1,000 of something, and we can count them, we know he told us the truth about that. If he tells us there are 10,000 of them, and we can count them, and there are only 1,000, we know he is not telling us the truth. He may be mistaken rather than lying. But we know that there is a credibility factor. If he then tells us that the chairman does not like the vice chairman in the first case, we think there is some basis for believing him, if in the second place we have some doubts about it.

We are able thus to use the information we get through secret sources to calibrate the other information. This ability to select what is valid and put together and assess the bits and pieces so that we can determine much better the meaning of the whole package that we have. This is really what the Central Intelligence Agency function is all about.

Chairman PROXMIRE. I just want to make one brief assertion for your information.

It seems to me that the CIA's analytical capabilities are its strong suit. I have been most impressed with the information provided to this committee and to my appropriations subcommittee. It is a shame

that these capabilities were not more freely offered in prior years or freely requested and used in prior years. It is probably our failure not being aggressive, rather than your failure to push yourself on the Congress. If the CIA had made its valuable analytical tools available to the Congress in past years, you would have built up a reservoir of good will that would have balanced off, it seems to me, some of the difficulties that you are now encountering. That does not mean I in any way condone the events referred to recently in the press. I do not.

But, it seems to me that the function of coming out and briefing us is most helpful. As an organization it is up to you to let Congress and the general public know that you are more than the traditional spy agency and that your primary contribution is in the analytical area.

Congressman Brown of Michigan.

Representative BROWN of Michigan. Thank you, Mr. Chairman.

Mr. Director, I was glad to hear you make a distinction between our open society and a closed society. I try to make that point with speeches to my constituents, that a substantial portion of your budget, of your activity, has to be directed toward obtaining the same quality and quantity of information with respect to a foreign closed society that is readily available in our society.

Mr. COLBY. Do not get me wrong, Congressman Brown, I like our society better.

Representative BROWN of Michigan. Of course, we all do.

I think we should recognize, especially in the intelligence area, that that makes our efforts much more costly than others, because we do have the luxury of an open society.

You have said that your analytical capability probably has not been harmed. I would ask, however, if that is really a valid answer, if access to information has been jeopardized. I would think that you would be a little more leery about the conclusiveness of your findings when you do not have the quality, maybe the quantity of information to analyze that you had before.

Mr. PROCTOR. My answer to the previous question was directed toward personnel resources, attitude, morale, and productivity. I am concerned about the loss of sources of information, very concerned.

Representative BROWN of Michigan. If I may interrupt for a second? It is probably in those areas where you are not too happy with the accuracy of your information, that access to human sources is especially critical.

Mr. PROCTOR. You are correct.

The chairman asked us to try to project Soviet military expenditures beyond a 2-year period to, say, 5 years. If the Agency had a source with access to this kind of information—in the planning bureau, for example, in the Soviet Union—where they obviously do plan for military allocations 5 years and maybe longer, I would be in a much better position to respond to the request for projections with a great deal more confidence. Of course, this would also improve our estimates of current military spending.

PROJECTIONS AND FORECASTS DISTINGUISHED

Chairman PROXMIRE. If the gentleman would yield, we may be confusing forecasting and projections. We are not talking about fore-

casting; we are talking about projections. Is that not right? The projection, it seems to me, does not require that kind of information. The Office of Management and Budget, for instance, has indicated their projections of what they expect national expenditures, GNP, to be, and, they say this is not a forecast in any way, shape, or form, simply a projection. Is that not what you are asking?

Mr. PROCTOR. What I would like to see is a Soviet projection of military expenditures for the next 5 years. I know they make them.

Representative BROWN of Michigan. I know that if you are projecting, you are projecting on the basis of the totality of the sources and information that you presently have. Now, if something happened and your source of information had not been jeopardized, if he told you something happened that would change the projection you would make a correction. But now, if you lose that source, the opportunity to see that something has changed, projection has been severely limited.

INTERRELATION OF COVERT OPERATIONS AND INFORMATION GATHERING

Let me ask you, we always talk about covert operations and clandestine operations as though they were separate from information gathered by technical and other normally accessible means. It is not that simple; is it?

Mr. COLBY. No.

Representative BROWN of Michigan. It does seem to me, with what little I know about your business, that they all interrelate.

Mr. PROCTOR. They most certainly do.

Mr. COLBY. Cross checking, of course, in many cases, is a way of making them both more effective. Sometimes if you can get a good agent to carry a good device to the right place, the device will do the reporting. But it could not have gotten there without the agent.

Correspondingly, there may be some devices that allow you to check the credibility of an agent—to see whether he really was where he says he was and did what he said he did. You interrelate technology and clandestine activities frequently for that purpose.

Chairman PROXMIRE. What interrelationship is there, if any, between analysis and intelligence gathering on the one hand and destabilizing foreign governments, para-military actions in which violence is used or intimidation on the other?

Mr. COLBY. If I may, Mr. Chairman, one point about the word 'destabilizing." I have to repeat a comment that I have made publicly. That word, unfortunately, is a word applied to CIA worldwide. It is always put as a quote out of my mouth during a closed hearing in the House. That quote does not exist in the transcript because I did not use the word, and I am not just arguing about semantics. I described our program in Chile and I said that the program of the Agency in Chile from 1971 on was one of attempting to sustain the democratic forces looking toward the elections of 1976, which they hoped to win. We had nothing to do with the military coup, and we had nothing to do with the failures of the earlier government.

Chairman PROXMIRE. Sustain democratic forces, as you put it, has nothing to do with gathering intelligence, does it?

Mr. COLBY. In this case, no, it did not have. The word "destabiliz ing" is one of those words that has been hung on CIA, put on us by an individual. That is an aside, if I may, Mr. Chairman.

DECISIONS TO CONDUCT COVERT OPERATIONS

The second point, your question is what connection is there between the intelligence analytical function and our responsibility to conduct covert political or paramilitary operations in other countries? Covert paramilitary or political operations in other countries stem from national policy decisions approved by the National Security Council pursuant to the law that set us up. The National Security Council's decision obviously depends in part upon our analysis of the likely course of development in that country.

In addition, however, someone may identify a need to do something in the covert political or paramilitary field in that country. This may be an Ambassador; it may be the National Security Council; it may be the State Department; it may be the Defense Department; it may be the CIA.

The proposal to accomplish the objective is prepared by the Operations Directorate of the CIA. The proposal is checked before it goes to the NSC by Mr. Proctor representing the analytical function of the Agency to make sure that we are not operating on some false assumptions or rosy views of the possibilities. That was not done in the Bay of Pigs; the action was conducted in the Bay of Pigs without that check.

Since that time, pursuant to Mr. McCone's directives, these proposals have been checked in almost all cases—not all cases, but almost all cases—with the head of our Intelligence Directorate. He comments and says whether he thinks it is a good idea, a bad idea, a useless idea, and in some cases Mr. Proctor has told me that the idea is a useless idea and it should not be done.

Chairman PROXMIRE. You do not check whether it is related to intelligence gathering, just whether it is a policy that the CIA can advantageously follow?

Mr. COLBY. It is related to intelligence within the words of the statute. Both intelligence gathering and covert action use clandestinity. Frequently we will be in contact with the same individuals, the same political forces that are sources of intelligence in that area. At one time, in the late 1940's and early 1950's the two functions of covert activity and intelligence gathering were separate. We found that this was very impractical because they began to run into each other and bump into the same people. You had the bureaucratic problems of two organizations.

DISTINCTION BETWEEN GATHERING INFORMATION AND TAKING ACTION

Chairman PROXMIRE. Maybe my mind works in too much of a dichotomy. But it seems to me that there is a clear, distinct difference between gathering intelligence on the one hand, and taking some kind of action, military action, paramilitary action on the other—a very distinct difference. It seems to me it is not at all confusing, even though you use the same method. It is like saying arsenic may be very helpful

in some respects, and therefore the people who use it for fertilization, and whatever they are using it for also can use it to poison people they do not like.

Mr. COLBY. The statute says that the Agency will "perform such other functions and duties related to intelligence affecting the national security as the National Security Council may from time to time direct." That is the provision of law under which the Agency is able to do these kinds of activities. Therefore, as I have described, they are related to intelligence as part of that phrase, but there is a clear distinction between the two activities. It is embodied in the Foreign Assistance Act now. Section 32 says that the Agency, if it does anything other than pure intelligence collection, will secure a finding by the President that this is important to the national security and will report it to the appropriate committees of the Congress, which adds up to six committees of the Congress. We are in compliance with that law. As I said, we now do very little of it.

There is a very sharp difference between the collection of intelligence and the process of going out and affecting a local situation by political assistance, paramilitary activities, whatever. Certainly there is a difference and we are conscious of the difference because for the former we do it under our general charter; for the latter we must do it according to the Foreign Assistance Act provision at this time.

Mr. PROCTOR. There is one other aspect that might help, Senator.

In many cases, in foreign countries, a foreigner, who may be an excellent source of information, may also be a person who we would want to deal with in a covert political action. Usually foreigners who work with us in providing information, have the same political motivations as would be required to countinue the policies or transform the policies of that foreign country to be more coincident with those that the U.S. Government policy would like to foster. Furthermore, the same U.S. CIA employees, would deal with these foreigners for collection and covert action.

That is the connection.

Representative BROWN of Michigan. I quite agree that there is this distinction when we were talking about operations, affirmative operations, to affect some change politically and by paramilitary means and so on, but I think that often times it is considered that all intelligence-gathering can be done in a nice, pleasant, cordial atmosphere. If you have a source of information, be it human or electronic whose capability of continuing to furnish you with intelligence is jeopardized in some way and if you were going to continue to gather intelligence in that way, then you have to take some steps sometimes to protect that intelligence-gathering capability.

Mr. COLBY. Certainly.

Representative BROWN of Michigan. That is what I was referring to when I said that they are somewhat interrelated. Tough intelligence sometimes requires tough action.

Mr. COLBY. There are certain situations where you get into confused or even warlike situations. If you send in somebody to find out what is going on, you had better send him in armed, or he is not going to come back.

This is still an intelligence operation. It is not a paramilitary operation to go in and blow up a bridge or anything. He is just going in to

find out what is happening, but he better have some weapons with him if he is going to hope to survive.

Representative BROWN of Michigan. If it is a source that you are basically protecting, that you need to have continued and he is being threatened, you may get involved in things that appear to be unrelated to the intelligence-gathering function.

Mr. COLBY. I think you can usually limit the size and scope of it and really, the function. You send him in with the directive that he is to come back and tell you what happened, not to take advantage of being in there to change the course of events.

Representative BROWN of Michigan. Earlier we were talking about modern intelligence, I think in answer to the chairman's question about the amount of intelligence derived from all of the—shall we say usual sources?

It may be true that a high percentage quantitatively of the intelligence you get comes through that effort. But if we look at it qualitatively, it is probably an extremely important portion of intelligence.

Mr. COLBY. We have taken some steps in recent years to reduce the quantity of clandestine reports. We stress that we want more high quality and less low quality.

CLADESTINE SOURCES

Representative BROWN of Michigan. Although you may get a lot of information, you may need some kind of critical, special information. You may need some particular clandestine sources to make a determination in a close case or to understand the intelligence which you have in great quantity.

Mr. PROCTOR. Exactly. Often we discover things from technical sources which we can describe beautifully—length, width, height shape—but wo do not know what it is for, what it does, and the only way we have discovered what it is for is from clandestine collection. All the information that we continue to collect by technical means then takes on meaning which it would not otherwise have.

Representative BROWN of Michigan. Are there not situations where you may end up believing that you have something but unless you can get a little closer to the sources, you cannot make sure of that?

Mr. COLBY. One of the problems of intelligence, Congressman Brown, is sometimes we can see the external factors which suggest that the comparative forces between two nations are so much. The trends that we detect from technical sources and from overt sources are that one side is not going to do something. But the decisionmakers of that side may be thinking that the situation is not what we see it is; but they see it differently and may be coming to the wrong conclusion and take action on that basis. We would miss the point if we only look at the objective factors. We have to get at these subjective appreciations by the parties and actors and performers on both sides. We only get that through having someone there among them who can tell us what their perceptions are.

Chairman PROXMIRE. May I interrupt a second because this is a very interesting line of questioning, and, of course, Congressman Brown is free to assist in any way that he wants. It was not my intention, frankly, to get into this area. I hope that you do not feel that I led you into it.

We are asking about the Chinese and Russian economies, and you have been extremely helpful in that respect. I do hope when you review your remarks for classification you will leave in as much as possible. I think they constitute information that is valuable to American citizens who want to know about their Government, and it is a very useful explanation of things about the CIA that puzzle a lot of us.

Mr. COLBY. I am delighted to have an opportunity to explain some of these things in this kind of a forum and make it available to the public.

Representative BROWN of Michigan. I will not pursue it further except I think we can draw an analogy. X-rays are awfully good. Sometimes that which looks like a tumor is not a tumor. Sometimes that which does not look like a tumor is a tumor, and the doctor oftentimes has to do a little probing.

Mr. COLBY. Exactly right. That is a very good analogy.

SOVIET INVESTMENT

Representative BROWN of Michigan. Let us get back on course. Just a couple of questions here.

In your statement you talked about Soviet investment as it related to GNP and you conclude in 1973 that it has gone up and that the number is higher than for the United States in that year.

Is this differential an inevitable result, do you think, of the fact that the U.S.S.R. is less developed comparatively than the United States and simply needs more capital investment than the United States, or is there some other reason?

Mr. COLBY. It was the percentage of investment, was it not, that was higher?

Mr. NOREN. It is two things. The Soviets are investing about 25 percent of their GNP; we are investing about 18 percent. But the Soviet program was so strong that in 1973 their new fixed investment in 1973 dollars was slightly larger than U.S. fixed investment. This is a result of their policy stressing persistent emphasis on economic growth to keep their growth rate up to a level of say 4 to 5 or 6 percent a year. They have to invest this much. This rate, the percentage of Soviet GNP devoted to new investment, as you see, has been going up from perhaps 15 percent in the early 1950's to 25 percent now. We think that it will go higher.

Representative BROWN of Michigan. You think it will go higher as the percent of GNP?

Mr. NOREN. Yes. This is really the result of their not achieving the productivity gains they need to sustain the rate of growth of GNP at 5 to 6 percent. The growth of the labor force has been declining. In the 1980's, it will go down to less than 1 percent a year. Unless Soviet productivity grows faster, they are going to have to invest more to sustain the present rate of growth in GNP.

Representative BROWN of Michigan. In this nation we get an increase in capital investment through capital recovery profits, et cetera, or through infusion of new capital.

How do you increase capital investment in Russia?

Mr. NOREN. It is allocated as a part of the national planning process. They will decide how much investment is going to take place. Right now it is running at the rate of over 100 billion rubles a year. Practi-

cally all of it is assigned in the national plan. There is some that is left to the collective farms. They can decide how much of their retained income to invest in their own enterprise.

U.S. and Soviet Investment Compared

Representative Brown of Michigan. Do you have an analysis—comparison, maybe, is a better word—in constant 1973 dollars of investment in Russia vis-a-vis investment in the United States?

Mr. Noren. Yes; in dollars. In the United States, new fixed investment was $234 billion; in the Soviet Union, also $234 billion.

Representative Brown of Michigan. I have no further questions. I regret and want to apologize for being called away. I did not get a chance to hear the final portion of your statement. I have not had the advantage of it, but we have had votes over in the House.

Mr. Chairman, may I make a request? Can we in some way get some priority for a room in the Capitol Building? That is a heck of a trip over here, from over here and back.

Chairman Proxmire. We will try to do that next time. That is a good idea. This is so convenient for us in the Senate.

Estimates of Soviet MIRV's

Mr. Colby, when did the U.S. intelligence community first estimate that the Soviets would deploy a MIRV capability, and when was such a capability actually deployed?

Mr. Colby. It was actually deployed last winter for the first time. When we first estimated that it might be deployed, I would have to fill that in for the record, Mr. Chairman. I cannot say that for sure.

The first actual deployment, however, took place a few months ago.

Chairman Proxmire. The reason I asked that is because premature estimates of the Soviet MIRV were used several years ago to help justify going ahead with our ABM.

What accounts for the discrepancy between estimated and actual Soviet MIRV deployment? Were the CIA's estimates different or more accurate than the estimates made by the Pentagon?

Mr. Colby. I would have to fill in the answer to that for the record, Mr. Chairman. Obviously we have been following the Soviet test of their MIRV missiles here, and for the last couple of years, we have seen the first MIRV test. I believe it took place in mid-1973.

Chairman Proxmire. Is this not an example of scare tactics?

Mr. Colby. You could see the clear intention to go ahead and deploy as soon as development tests were finished at that time. I am not sure just when your reference point is.

Chairman Proxmire. Could I ask Mr. Burton? Would he be able to answer that?

Mr. Burton. No; I really could not.

Mr. Colby. I am sorry. I did not anticipate that question.

Chairman Proxmire. This is one of the things that concerned me about having the Defense Department making these intelligence estimates. I think it was the Pentagon that estimated they would have their MIRV's ready 2, 3, 4 years ago.

Mr. COLBY. I will do a little paper on that whole question for you, Mr. Chairman.

[The following information was subsequently supplied for the record:]

Soviet MIRV capabilities were first projected in the National Intelligence Estimate of 1965. At that time we estimated that the Soviets could probably attain an operational capability with MIRV's in the 1970–75 time period.

At the time of the ABM debate in the summer of 1969, we noted that MIRV testing was underway in the U.S.S.R. and estimated that within the next few years the Soviets would deploy MIRV's. Our intelligence projections of 1969 indicated an initial MIRV operational capability in 1974. In 1970 we estimated that the Soviets would develop hard target MIRV's and begin to deploy them in the 1973–76 time frame. Subsequent estimates predicted the attainment of initial operational capability at various times within the 1974–76 period.

All these estimates represented the combined judgments of the intelligence community. There were no dissents to these judgments registered in the intelligence community at the time the estimates were made.

The Soviets began flight testing MIRV's in April 1973; initial operational capability at a deployed launch site was achieved in December 1974.

CIA ESTIMATES AVAILABLE TO OMB AND COMMITTEES

Representative BROWN of Michigan. Along that line, what is there to assure the Congress that while the Defense Department is making pronouncements in connection with its budget, you are not sitting back there with information showing that what the Defense Department is telling us is just not so.

Do we have to rely upon your input feeding up through the National Security Council and then the President to make sure that the Defense Department is not exaggerating or puffing the accomplishments of others so as to justify its budget?

Mr. COLBY. Certainly in the executive branch the Office of Management and Budget follows that kind of problem. They have access to our estimates and our information. They do use it as a cross-check on the various statements of the threat now presented by the Defense Department.

Second, it is the practice of the Appropriations Committee and of the Armed Services Committee to have me provide them with a world roundup of the problems we face. They have followed in very great detail the development of Soviet strategic weapons over the past several years. There are various other committees that follow quite closely these developments. We have made arrangements with certain committees to provide this kind of material on a regular basis so they can make their own judgments.

Of course, since we are talking about highly classified material, to some extent, it does require that the committees learn what we have in a classified form.

NEED FOR PUBLIC INFORMATION

Chairman PROXMIRE. Why would it not serve the public interest if both you and the Pentagon made your estimates public? After all, the Pentagon makes its estimate public in the posture statement. We know about it. They make sure everyone around the country hears about it.

Unless we somehow are able to get information from you and go through this process and then have it declassified, we do not know about it.

Mr. COLBY. There are some things we can make public and do make public, Mr. Chairman. We publish various documents on the subjects that we can. Our test is really whether the information should be kept classified because of the sources and methods involved.

Chairman PROXMIRE. What concerns me is one reason you may not make it public, as I understand it. If I were in President Ford's position I might feel that I would not like to have two of my agencies contradicting each other, as if they did not know what was going on. There is a difference sometimes, not always. Frequently you agree. When there is a difference, however, it seems to me we would all be better served if we knew about it.

I think we can explain it intelligently. That does not mean that the Pentagon is lying. It does not mean that you are underestimating it necessarily. It means that there is just an honest difference and we ought to know it.

Mr. COLBY. There are some differences surfaced in the estimative process. We try to reflect that in the final estimate.

Chairman PROXMIRE. You do not make it public. That is my point.

Mr. COLBY. We do not make it public at that stage but the posture statement put out by the Defense Department generally does reflect the estimate, the final national estimate.

Chairman PROXMIRE. They can be selective in what they publish. They can determine the effect of these estimates, and they have a perfectly understandable interest in trying to make it appear that they need a greater budget.

Mr. COLBY. They are cautious, quite frankly, in the things that they make public. They try to make public the conclusions and not the sources and methods from which they are derived.

Chairman PROXMIRE. I am not asking for that. I am not saying selective in that sense; selective in the sense that they can emphasize the area where the adversary may be strong, and not report the areas where the adversary is weak or declining.

Mr. COLBY. The problem is, that if you publish the final estimate, you would inevitably include some very sensitive material. You could not avoid that.

Chairman PROXMIRE. We would not ask for that.

Mr. COLBY. Therefore, we have published it in classified form. We make it available in classified form to the Congress.

Chairman PROXMIRE. Why can you not publish and make available a sanitized version?

Mr. COLBY. In some situations we have and do. There are occasions when we write a letter to the chairman of the Appropriations Committee, on request, giving our view of a particular subject.

Chairman PROXMIRE. Would it not be desirable for you to do this regularly as an expression of the CIA's estimate of overall Soviet and Chinese military strength each year, when you can?

Mr. COLBY. Quite frankly we have one problem with that, Mr. Chairman. We want to stress independent and objective analysis and conclusions. If we can do it in a classified form, we insulate our process

from the political debate. We can make our findings available to the people who are helping make the decisions. At the same time, we do insulate ourselves from getting in the middle of a political battle.

Chairman PROXMIRE. The debate is the guts of it, before the decision is made.

Mr. COLBY. I am just afraid that if we expose our estimates to too much political debate, we will begin to reduce the enthusiasm of some of our people for taking as hard as sharp a position as they otherwise might take. They do take a sharp position in the classified form.

I am a little concerned about the depressing effect that this would have on their willingness to stand up and contest some of these questions.

TESTIMONY BEFORE COMMITTEES

Representative BROWN of Michigan. Have you been requested by the Appropriations Committee and authorizing committees to testify with respect to the defense budget when the Defense Department comes in with its request stating what it has included and why? Are you requested to have your input with respect to those conclusions or the potential of country *x*?

Mr. COLBY. Yes. The Appropriations and Armed Services Committees always ask for our assessment of force levels and, projections of future developments. This is a regular process. Those committees have us up every year for a full-scale briefing, and they are kept up to date on new developments. We do not comment on DOD proposals or expenditures on American weapon systems. That is a policy problem. We talk about the foreign situation; but we do not comment on American proposals.

Representative BROWN of Michigan. That gets me back to the chairman's original question, back to MIRV.

The Defense Department told us years ago the potential was there.

My question is, did you come to Congress with your critique of their conclusions?

Mr. COLBY. I do not remember. I cetrainly was not involved in the incident so I do not have it in my institutional memory. I will try to respond later.

Representative BROWN of Michigan. That is what the chairman is driving at. You may have a separate projection or whatever you want to call it.

Mr. COLBY. That certainly would be available to the members of the Appropriations and Armed Forces Committees.

Chairman PROXMIRE. Available, but they do not always ask for it.

Mr. COLBY. They usually do get it. They have gotten it every year.

Chairman PROXMIRE. It does not get printed. As you say, it is sometimes classified and does not get debated.

Mr. PROCTOR. That is a distinction that has to be made between public and classified briefings.

At least once, and probably more often than that in the year, the Director presents a full briefing on Soviet weapons and force developments based on national intelligence estimates and similar kinds of documents. These briefings reflect whatever differences may be expressed in those documents and are usually given within a week or so of the Defense Department briefings, or posture statements. I presume that is what you are referring to.

So, they get our views in separate hearings at which time they may ask whatever questions they wish.

Chairman PROXMIRE. This is exactly why it seems to me it would be helpful to have a sanitized version that could be printed, could be publicized, and we could have a comparison and debate it. I understand your reluctance about that.

I think what you told us today has been very helpful. Let me just conclude with a couple of brief questions on the Chinese defense program.

CHINESE MILITARY PRIMARILY DEFENSIVE

Would you agree that the Chinese military establishment and Chinese military doctrine are primarily defensive and concerned largely with the Soviet threat?

Mr. COLBY. Certainly.

Chairman PROXMIRE. Were those U.S. experts wrong who for many years assumed that China planned domination of all of Asia by military means, that they planned the conquest of Vietnam, Thailand, Korea, and Taiwan, and that China was an expansionist nation?

Mr. COLBY. I am not sure of your reference as to who predicted all of this.

Chairman PROXMIRE. We were told constantly—I ran campaigns against fine people who were good on a lot of things. They said the real menace is China. They will be going after us and they will be dominating Asia soon. The next step is Hawaii, and so on.

A lot of that is nonsense. But they did argue that there was a threat as far as Asia is concerned.

Mr. COLBY. Certainly during the Bandung period in the mid-1950's, and following Lin Piao's statment in 1965 about surrounding the developed countries by the rural and less developed countries, a lot of that kind of rhetoric came out of China and was espoused by Lin Piao and Mao himself. It was a belief that the revolution would occur in all these other countries.

There are only two Chinese weapon systems that we have seen that really could be thought of as offensively oriented toward us. First is the possible development of an ICBM with a 7,000 mile range which would not occur until the late 1970's, if then. Second, they have been working on a nuclear missile submarine for a long time but obviously have not done very well with it. They have the capability to develop one. These developments are an indication of some interest.

LIN PIAO

Chairman PROXMIRE. I think you have answered this next question already when you showed us the facts about their reduction in procurement. But there was, I understand, a very real argument, at least in the academic community, maybe in the Government too, before Lin Piao was removed from the Chinese hierarchy. Was he an advocate of higher or lower defense spending? What impact did his removal have on Chinese defense strategy?

Mr. COLBY. He obviously was the head of the military establishment, and the military was getting an increased percentage of Chinese machinery production at that time. Since that time there has been a drop in the percentage given to military procurement.

Chairman PROXMIRE. That was the figure [1] that I thought was particularly dramatic.

Mr. COLBY. The two peaks there and the drops are something to watch. You can see China has managed to get itself in trouble by its various programs of mass excitement. You know, Mao's permanent periodic revolutions.

CENTRALIZATION AND DECENTRALIZATION IN CHINESE ECONOMY

Chairman PROXMIRE. You discuss the Chinese economy as a highly centralized economy. There also seems to be a considerable degree of decentralization.

One of the points stressed to us in the hearings that we have had over the last several years is that they stress very strongly part of the Mao doctrine—self-sufficiency; and the fact that when a particular factory in a particular area has a problem, they do not run to central headquarters to get bailed out. They have to help themselves.

Is there not a dichotomy here? Is there not a difference? Is there not at least an element of decentralization involved?

Mr. FIELD. It seems to me this operates on two different levels. They have stressed self-sufficiency nationally and stressed self-sufficiency regionally, within the country. But, that does not mean that they do not have a strong central planning mechanism and an ability to control resources. I think that it is through the ability to control allocations of investment, to make policy decisions, and so on, that the central control is enforced. Therefore, there is, in fact, a strong central control even though they emphasize having sufficient quantities of different kinds of output in the regions on China.

Mr. COLBY. Central planning and decentralized problem solving.

LABOR PROBLEMS IN CHINA

Chairman PROXMIRE. You mentioned sporadic work stoppages and low worker morale in China. You also indicated that one of the reasons why the growth of steel production was so steady in Russia was that they have no work stoppages. I am surprised to hear about labor troubles and strikes in China, which has the same kind of a system with unions having no power or authority. What was the cause of the stoppages? What was the Government's reaction to them?

Mr. FIELD. The average wage of a worker in China now is about the same as it was in 1957, so——

Chairman PROXMIRE. In real terms?

Mr. FIELD. In real terms about the same, so there has been no appreciable increase in the standard of living. I think there is a genuine demand on the part of workers in China for an increase in the standard of living, when campaigns or other movements have loosened somewhat the discipline in the society, these demands came to the surface, for example, during the cultural revolution in 1967 and 1968. There were demands for increased wages and for better times. The same thing happened last year during the anti-Confucious criticism campaign, when things were disrupted again. These demands for greater wages, more consumer goods, and so on came to the surface.

[1] See fig. 21, p. 45.

Increase in Production

Chairman Proxmire. All this enormous increase that the figure shows in industrial production and even some increase in agricultural production since 1957 has gone for strengthening their military force or for some other purpose rather than for increasing the consumer income? Is that right? Or, is it because of the population increase?

Mr. Field. The 2 percent or more annual increase in population has consumed the increases in agricultural output. They have just barely managed to keep even, and this has required increasing investment in related parts of industry, such as chemical fertilizer and synthetic fiber plants.

Chairman Proxmire. That explains the agricultural production. But the industrial production has increased tremendously. It looks as if on the basis of that that it has far more than doubled since 1960, and the population, of course, has not increased that much.

What is the explanation for that?

Mr. Field. A very large part of the increase in industrial production is in fact due to the increase in output of producer goods in their machine building industry. They are still at a fairly early stage of industrialization, and their machine building industry has been growing very rapidly, making the tools to equip other branches of industry to help development. I would not say that there has been no increase in the standard of living. But, the increase in the standard of living has been fairly moderate.

Chairman Proxmire. There is one final puzzle for me, a matter of arithmetic. Let us take a nice simple-minded approach.

U.S. and Soviet Military Manpower Compared

Let us assume that the United States has 2 million people in the military—we have a little more than that, I guess, but about that—and the U.S.S.R. has 4 million—they may have a little less than that, but it is roughly that. Let us assume we have a $100 billion budget—we do not have quite that—for the military, but it is close to it and that 58 percent of our budget, or $58 billion is for personnel. If we translate that into the U.S.S.R., that is a $116 billion budget for personnel costs alone. You are not showing that kind of enormous discrepancy, because of course there is a great deal of spending in other areas too. How do you explain the fact that just on the face of it this would seem to translate into a far larger U.S.S.R. budget than you have shown us?

Mr. Burton. It is not twice as much.

Chairman Proxmire. What is not twice as much?

Mr. Burton. The number of men.

Chairman Proxmire. Close to it, is it not?

Mr. Burton. Well——

Chairman Proxmire. 3.1 or 2.9—close to this percentage point.

Mr. Burton. The Soviets had about 5.2 million people in their defense establishment in 1974, including civilians and uniformed military personnel. On our side we had somewhat more than 3 million.

Chairman Proxmire. We have a little less than 1 million civilians.

Mr. BURTON. We have slightily more than 2 million uniformed personnel. Also in our calculations, personnel costs come to slightly more than 50 percent on the U.S. side rather than 58 percent.

Chairman PROXMIRE. Not 58 percent but 50 percent?

Mr. BURTON. Slightly more than 50 percent.

Chairman PROXMIRE. The cost of our military establishment, or personnel cost?

Mr. BURTON. Personnel costs.

There are many different ways to count personnel costs. Our figure for personnel costs is principally pay and allowances.

Chairman PROXMIRE. You do not include retirement?

Mr. BURTON. We do count retirement. The United States has much higher retirement costs than the Soviet side has. We also count food, clothing, etc.

Chairman PROXMIRE. Maybe for the record you could give us a little more detail on that because that does seem to be a little bit confusing.

Mr. COLBY. We will be glad to. We will give you a statement on that.

The following information was subsequently supplied for the record:]

We estimate total Soviet active military manpower in 1974 at about 5.2 million, including both uniformed and civilian personnel. This is about 60 percent more than the 3.3 million uniformed and civilian personnel in the U.S. defense establishment in that year.

The United States spent $33.1 billion (in 1973 prices) on pay and allowances for its 3.3 million active-duty uniformed and civilian defense personnel in 1974, an average of about $10,100 per man. We estimate the dollar cost in the United States of retaining the 5.2 million men in the mix of forces and civilians in the Soviet defense establishment at about $52.8 billion. The dollar costs of the two defense establishments are proportional to their manpower strengths.

When retirement pay and reserves are added, the U.S. pay and allowances bill increases to $39.3 billion. The Soviet defense establishment has fewer people on its retirement rolls, and its military reserve force trains much less than that of the U.S. As a result, the inclusion of retirement and reserve pay has less of an impact on the dollar cost of Soviet defense manpower. The total dollar cost for Soviet manpower in 1974 is estimated at $55.1 billion, about 40 percent more than U.S. spending.

DOLLAR COSTS OF UNITED STATES AND SOVIET MILITARY MANPOWER IN 1974

	United States	U.S.S.R.	U.S.S.R. ÷ United States
Active uniformed and civilian manpower (million men)	3.3	5.2	1.6
Pay and allowances for active uniformed and civilian manpower (billion 1973 dollars) [1]	$33.1	$52.8	$1.6
Pay and allowances for active uniformed and civilian manpower, reserves, and retired manpower (billion 1973 dollars) [1]	$39.3	$55.1	$1.4

[1] Includes basic pay and allowances for all manpower; food and clothing for active uniformed and reserve manpower.

Chairman PROXMIRE. I could see how some of the figures have been argued, that they have nothing but people. They just have a big hoard of persons. I suppose if we did this for the Chinese, they have an even bigger army, do they not?

Mr. COLBY. Yes.

Chairman PROXMIRE. China is pretty weak militarily, compared to the Soviet Union and ourselves. But they have such a colossal army; that would translate into a whale of a lot of dollars.

Mr. COLBY. This is the problem in the dollar cost comparison that we always go through, and I think we have an explanation that will clarify the matter.

CHINESE POLICY

Representative BROWN of Michigan. Getting back to the Chinese expansionist policy. Its Vietnamese influence, the India-Pakistan-Bangladesh question—are these not expansionist? I assume you have some indications of it.

Mr. COLBY. The only area at the moment in which you can identify obviously expanding Chinese presence and power is the road system being developed down into Burma and Laos. This is one of the most fascinating aspects of the whole scene out there. China has pretty well made an agreement with most countries not to actively support the revolutionary forces therein. But Burma has been an exception to that for many years. They have been supporting the Burmese Communist Party against the Burmese Government for many years. You can set up an hypothesis that this road system represents a typical Chinese dynastic look at history and a feeling that China should arrange for access to Southeast Asia in the long term.

The North Vietnamese are hard to get along with. The Chinese have not participated actively in the Southeast Asian war themselves, although they have given assistance. I do not think they have been overly munificent in the assistance they have given.

In Korea, Kim Il-song has successfully played China off against the Soviet Union. He kept his options open on which way to go. This was one of the masterful things that Ho Chi Minh did for so many years, playing one side off against the other, and profiting accordingly.

Chinese concern today is largely focused on Soviet policy, on the Soviets on the Siberian and Mongolian borders, and on Soviet political presence and other possible influence in Southeast Asia and various other parts of the world. They are countering Soviet pretensions in the Indian Ocean and in other areas.

But the Chinese, as you said, Mr. Chairman, have been largely in a defensive posture for a number of years now. Their present deployment of forces, their present political policies seem to be primarily defensive in the border regions of China, designed to give them a buffer against hostile forces. They have some state relationships with the Third World, political relationships with the Third World, but they do not have a very active program of launching subversion, as they did during the 1950's.

MILITARY PROCUREMENT

Representative BROWN of Michigan. You noted when you had the figure [1] up here about military procurement in China, that there were other peaks. It appeared to be somewhat cyclical.

Mr. FIELD. The peaks correspond to the performance of the economy, those that you are talking about. Because industrial production was growing in the mid-1960s, it was a period of moving forward in military procurement. When there was a general collapse of the economy, there was also a fall in military procurement.

[1] See fig. 21, p. 45.

Representative BROWN of Michigan. What I am saying is that if you will look at military procurement from 1964 up to 1966, there was a substantial and consistent increase that then dropped off, leveled off. Then it went up again from, let us say, 1968, peaked in 1971, and then came back down.

Mr. COLBY. I think you can link them in the following way. The 1965 period, was a time when Lin Piao made his famous speech about exporting the revolution all over the world. Then there was enthusiasm for supporting insurgency and various other things, and there was a feeling of some beligerency. Then you had the cultural revolution here, and that led them almost into chaos and just stopped everything for a while. Then in the 1969–70 period military procurement was undoubtedly driven by the increase in the danger of Soviet incursions from the north. They were very concerned at that time about the possibility of a Soviet strike against their strategic capabilities and against the north of China.

So, those two surges can be identified for those reasons. The drop during the cultural revolution; the drop after the great leap forward; the drop after the departure of Lin Piao.

Representative BROWN of Michigan. You do not think that there will be an event that will make the cycle repeat itself again?

Mr. COLBY. We think it could happen; yes.

DEFENSE AND THE ECONOMY

Chairman PROXMIRE. Is it not true that with the weak economy China has compared with that of the Soviet Union and this country; with China having only 10 percent of our gross national product, to the extent they pour their scarce resources into the military, they have no choice but to penalize their economic growth? Wouldn't they be weaker in 20 years if for 2 or 3 years they concentrate heavily on military procurement?

Mr. FIELD. I think this is very true. It is hard to know whether the present policies will continue over a period of time, but the January report that Chou En-lai gave at the annual meeting of the National People's Congress suggests that they are anticipating that the next 5-year plan period through 1980 will be one of moderate growth aimed at redressing some of the imbalances in the economy, building up capacity in some areas where they have bottlenecks. Starting in 1980 they hope to introduce a period of much more rapid growth, to achieve, as they put it, front-rank status.

Chairman PROXMIRE. They just do not have the options that the Soviet Union has of taking it out of the consumers' hide and the options we have, to a greater extent. As I understand it, you have told us that the Chinese get very little more than they got in 1957, and if they tried to give them less, they would not have enough food, and so forth, and shelter, to have the efficiency to continue to produce well.

So they are very limited.

The Soviet Union, on the other hand, because of a big improvement in consumer well-being, would be able for a short period—at least for 5 years—given a crisis situation, would be able to intensify its military efforts greatly.

Is that right?

Mr. COLBY. This is certainly true. Let us realize we have been talking in terms of percentages, but we are talking in very large numbers when we are talking about percentage changes in the Chinese population. They have over 900 million people right now, and will have a billion people in a few years.

Chairman PROXMIRE. That is a weakness; they have to feed them.

China is still working with an Italian-sized economy. The threat that they can mount with that size economy is pretty feeble.

Gentlemen, thank you. Thank you very, very much. You have just been wonderful to give us 3 hours of your time, and I think that you have given another excellent analysis.

Mr. COLBY. Mr. Chairman, it is a pleasure to be here and it was a pleasure to talk about the substance of intelligence.

Chairman PROXMIRE. Thank you very much.

Without objection, I will place in the record my letter to Mr. Colby, dated April 24, 1975, and his response to written questions posed in that letter.

[The letter and response follow:]

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., April 24, 1975.

Hon. WILLIAM E. COLBY,
Director of Central Intelligence, Central Intelligence Agency,
Washington, D.C.

DEAR MR. COLBY: I am delighted to know of your willingness to testify before the Subcommittee on Priorities and Economy in Government on the subject "Allocation of Resources in the Soviet Union and China." As in last year's hearing on the same subject, your testimony will be received in executive session so as to permit a free exchange of views, followed by a quick process of sanitizing the record for public release. I hope that the sanitizing process will be handled as quickly as possible. The classified transcript will be handled in accordance with the practice of other committees before whom you testify.

Your desire to not discuss operational matters will be respected. Our intent is to draw solely upon the analytical resources of the Central Intelligence Agency. I hope to be able to schedule the hearing sometime in the latter part of May. The specific day can be arranged by our staffs.

The subcommittee is particularly interested in the following areas of economic concern:

1. A comparative analysis of the U.S., U.S.S.R., and PRC economies including allocation of resources by sector, trends and long-range projections, foreign economic assistance, and foreign trade.

2. A discussion of the systems of state economic planning in the U.S.S.R. and P.R.C., distribution of income, pricing policies, and policies to deal with problems of inflation and unemployment.

3. A comparative analysis of the allocation of resources to military and space functions in the U.S., U.S.S.R., and P.R.C., including the consensus of the Intelligence Community as to the defense budgets of the U.S.S.R. and P.R.C., and a discussion of the available techniques of comparison.

4. A discussion of the roles of the army and other branches of the military establishment in the U.S.S.R. and P.R.C. in the non-defense sectors of their respective economies. (I understand that in the P.R.C. the army is employed extensively in non-military activities such as highway construction, land reclamation and flood control.)

In addition, it would greatly facilitate matters and add to the record of the hearing if you would furnish me with certain information prior to your appearance. My hope is that with this data we will be in a better position to ask more substantive questions and to avoid matters about which there is no dispute. I would therefore appreciate it if you would respond to the following requests:

1. Please provide an English translation of the defense budget figures as they appear in the official Soviet published documents for each of the past 10 years.

2. Please provide an English translation of those portions of the official Soviet published budget documents believed to contain defense and defense related expenditures not contained in the official figures for defense for each of the past 10 years.

3. Please provide a table showing the U.S. defense and defense related expenditures for each of the past 10 years, expressed in the ruble amounts the Soviet Union would have to spend to replicate the same forces. In other words, I would like you to use the same "building block" approach employed to estimate what it would cost the U.S. to purchase the Soviet forces in U.S. dollars, to estimate what it would cost the Soviet Union to purchase U.S. forces in rubles. I would like this table to be broken down in two ways, one using the breakdown contained in the National Defense Table on Page 71 of the U.S. Document for Fiscal Year 1976, and the other using the major military programs breakdown in the defense budget table on Page 73 of the Fiscal 1976 Budget Document.

4. Please provide projections for the Soviet defense budget for each of the next five years, broken down in force structure, based on each of the following three varying options; that the Soviet Union will spend the same percent of GNP as it is now spending for defense, that it will spend a smaller percent of GNP on defense.

5. In estimating Soviet defense expenditures is any allowance made for inflation; if so what assumptions are made about price changes in the defense sector of the Soviet Economy? Is any account taken of inefficiency or loss of productivity due to bottlenecks, shortages or governmental red tape, or costs imposed upon the Soviet economy due to inflation in other countries?

6. What are the areas of uncertainty in the direct costing or building block method of estimating Soviet Union spending? What margins of error are assumed for each part of the Soviet force structure?

7. What assumption is made for the portion of total Soviet R. & D. spending allocable to military R. & D.? When was the assumption first made? What is the rationale for the assumption?

8. Our R.D.T. & E. budget has been divided into six categories: (1) research, (2) exploratory development, (3) advanced development, (4) engineering development, (5) operational systems development, and (6) management and support. Please provide estimates of the portions of Soviet R.D.T. & E. spent in each of the six categories, and discuss the differences in U.S. and U.S.S.R. strategies with respect to emphasis on basic research as opposed to development, multiple designs, fly-offs, and numbers of prototypes.

9. In last year's testimony you indicated that the ratio of direct personnel costs to operating costs was higher in the Soviet Union then in the United States. (See page 33 of the published hearings.) As pay scales for military personnel are far lower in the Soviet Union then in the U.S., I would have assumed that the opposite would be the case. Please explain your findings.

10. Several private groups such as the Institute of Strategic studies publish inventories of Soviet forces including number of types of weapons. Your estimates of the annual defense expenditures of the Soviet Union assume knowledge of annual production. Please explain how annual production estimates are derived for aircraft, missiles, ships, tanks, trucks, small arms, ammunition and other items.

11. What provision is made in your estimates of dollar costs to purchase Soviet forces for the austerity or complexity of the different types of weapons, or do you estimate the cost based on the nearest U.S. equivalent of each Soviet weapon?

12. What would be the cost in dollars for the U.S. to build the following Soviet systems: the Mig 23, the Krivak class ship, the ABM deployed around Moscow, the SST?

13. Please discuss the method used to estimate the number of Soviet troops including the use, if any, of the Soviet tables of organization.

14. In last year's testimony you apparently used a method other then the direct cost or building block approach to estimate Soviet expenditures for civilian goods and services. For example, on page 52 of the published hearings, health expenditures in the U.S.S.R. are showed as only 32 percent per capita

compared to the United States. However, there are more doctors per capita in the U.S.S.R., more hospital beds, and a system of comprehensive free medical care. Much the same can be said for education, shown as only 63 percent per capita compared to the United States. How are your figures derived and would the results be different if estimates were made for how much the United States would have to spend in dollars to replicate the same civilian expenditures in the Soviet Union?

I am very grateful for your cooperation and assistance. If at all possible, I would like to have your response to the above 14 requests about a week before your appearance.

Sincerely,

WILLIAM PROXMIRE.

RESPONSE OF HON. WILLIAM E. COLBY TO WRITTEN QUESTIONS POSED IN CHAIRMAN PROXMIRE'S LETTER OF APRIL 24, 1975

Question 1. Please provide an English translation of the defense budget figures as they appear in the official Soviet published documents for each of the past ten years.

Answer. The Soviet Union provides very little public information on its annual expenditures for defense purposes. Only one statistic—the single line entry "For defense" in the annual state budget—is announced each year. The published figures for the past ten years are shown in the tabular presentation under question 2. The published state budget contains no information on what activities are covered by these figures.

There have been occasional references in Soviet publications dealing with the financing of the economy to a Ministry of Defense budget known as the *smeta* (estimate). These accounts describe the *smeta* as covering a wide range of defense activities while making no mention of military R. & D. So far, however, there has been no basis for establishing a link between the Ministry of Defense *smeta* and the defense expenditure line in the state budget.

Question 2. Please provide an English translation of those portions of the official Soviet published budget documents believed to contain defense and defense related expenditures not contained in the official figures for defense for each of the past ten years.

Answer. The principal categories of the published Soviet budget are listed in the attached table. Those categories believed to contain defense or defense related expenditures are shown in italics. For the first main category in the budget—Expenditures for the National Economy—the sub-elements that are given do not exhaust the total, leaving an unidentified residual. Also, an overall budget residual may be calculated by subtracting the identified categories of the budget from the total budget figure.

There is no firm evidence concerning the location of Soviet defense spending in the state budget over and above the explicit allocation to Defense. Most military R. & D., however, is thought to be funded through the Science allocation. In addition, outlays for a portion of pre-induction military training may be contained in Education expenditures and some military medical benefits may be contained in Health expenditures. Pensions are thought to be paid from Social Security funds. Some researchers believe that the unidentified residuals may contain military activities. The allocation to Industry and Construction presumably includes investment in the defense industries (not part of direct defense expenditures, but a defense related item) and possibly some investment in industrial facilities that may perform military R. & D.

U.S.S.R. STATE BUDGET BY ITEM OF EXPENDITURE, 1965–74

[Billion rubles in current prices]

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Total	101.621	105.577	115.242	128.558	138.531	154.600	164.15	173.20	183.98	198.5
I. For the national economy	44.915	45.175	52.761	58.727	62.384	74.554	80.4	84.9	91.3	NA
Industry and construction	(20.990)	(21.056)	(23.530)	(24.150)	(24.681)	(30.532)	NA	NA	NA	NA
Agriculture and procurements	6.772	6.304	6.961	9.271	10.853	12.375	NA	NA	NA	NA
Trade	2.272	2.842	4.921	6.094	6.430	6.258	NA	NA	NA	NA
Transport	2.585	2.356	2.349	2.377	2.563	2.841	NA	NA	NA	NA
Communications	0.244	0.257	0.269	0.277	0.325	0.264	NA	NA	NA	NA
Housing and municipal economy	4.226	4.526	5.046	5.247	5.885	6.458	NA	NA	NA	NA
Unidentified residual (computed)	(7.826)	(7.834)	(9.685)	(11.311)	(11.647)	(15.826)	NA	NA	NA	NA
II. For social-cultural measures	38.165	40.761	43.481	48.310	51.860	55.941	59.437	63.485	67.343	71.22
Education	(13.245)	(14.120)	(15.043)	(16.326)	(17.425)	(18.226)	(26.295)	(27.949)	(29.808)	[1] (31.2)
Science	(4.265)	(4.612)	(5.050)	(5.522)	(5.884)	(6.543)				
Health	(6.623)	(7.047)	(7.384)	(8.072)	(8.492)	(9.208)	(9.623)	(10.030)	(10.495)	[1] (10.7)
Physical culture	0.045	0.053	0.067	0.066	0.060	0.077				
Social security	(9.050)	(9.745)	(10.372)	(11.256)	(12.017)	(12.738)	(13.624)	(14.448)	(15.109)	
Social insurance	4.037	4.328	4.717	5.457	6.286	7.335	7.774	8.302	9.123	
Assistance to mothers	0.462	0.456	0.449	0.448	0.438	0.435	0.431	0.420	0.468	28.43
Social security fund for collective farmers	0.437	0.400	0.400	1.145	1.259	1.380	1.690	2.336	2.400	
III. For defense	(12.780)	(13.403)	(14.500)	(16.700)	(17.702)	(17.854)	(17.9)	(17.9)	(17.9)	[1] (17.65)
IV. For administration	1.280	1.412	1.512	1.616	1.716	1.661	1.8	1.8	1.9	[1] 1.86
V. Unidentified residual (computed)	(4.481)	(4.826)	(2.988)	(3.205)	(4.869)	(4.590)	(4.663)	(5.115)	(5.787)	NA

[1] Plan figure.

Note: Items in parentheses are believed to contain some defense or defense-related expenditures.

Question 3. Please provide a table showing the U.S. defense and defense related expenditures for each of the past 10 years, expressed in the ruble amounts the Soviet Union would have to spend to replicate the same forces. In other words, I would like you to use the same "building block" approach employed to estimate what it would cost the United States to purchase the Soviet forces in U.S. dollars, to estimate what it would cost the Soviet Union to purchase U.S. forces in rubles. I would like this table to be broken down in two ways, one using the breakdown contained in the National Defense Table on page 71 of the U.S. Document for Fiscal Year 1976, and the other using the major military programs breakdown in the defense budget table on page 73 of the Fiscal 1976 Budget Documents.

Answer. We do not have the ruble cost information necessary to develop such estimates at this time. One major conceptual problem in such an undertaking is how to ruble cost those items in the U.S. inventory which are beyond the technological capabilities of Soviet industry.

Question 4. Please provide projections for the Soviet defense budget for each of the next five years, broken down in force structure, based on each of the following three varying options; that the Soviet Union will spend the same percent of GNP as it is now spending for defense, that it will spend a smaller percent of GNP on defense, and that it will spend a greater percent of GNP on defense.

Answer. We do not have such projections at this time.

Question 5. In estimating Soviet defense expenditures is any allowance made for inflation; if so what asumptions are made about price changes in the defense sector of the Soviet economy? Is any account taken of inefficiency or loss of productivity due to bottlenecks, shortages or governmental red tape, or costs imposed upon the Soviet economy due to inflation in other countries?

Answer. Our estimates of the dollar costs of Soviet defense activities are in constant prices. This is done to permit examination of growth trends in real terms, independent of price changes. Our present time series are in 1973 dolars. They reflect U.S. military wage rates, scarcities, and productivity levels of that year. We revise these dollar cost estimates every year. Our next estimate, which is now in preparation, will be in 1974 dollars. The new estimate will reflect the sizable inflation in U.S. defense prices that took place between 1973 and 1974.

We believe the impact of inflation in other countries on Soviet military costs has been negligible.

Question 6. What are the areas of uncertainty in the direct costing or building block method of estimating Soviet Union spending? What margins of error are assumed for each part of the Soviet force structure?

Answer. We use a direct costing method to estimate the cost in the United States of procuring and manning a military force of the same size and inventory of weapons as that fielded by the Soviets and operating that force as the Soviets do. This approach begins with detailed estimates of the Soviet forces and their operations. The cost estimates are generated by applying dollar prices to these weapons programs and activities.

PERSONNEL COSTS

Our dollar cost estimates for personnel are derived by applying U.S. compensation rates to the Soviet manpower estimates. The compensation rates reflect U.S. pay and allowances, rations, and clothing allowances for the base year (1973). The methodology used for estimating Soviet manpower strengths is described under question 13.

PROCUREMENT COSTS

These are derived by applying dollar cost estimates to our estimates of the numbers and types of weapons and other equipment procured by the Soviets. The methodologies used in our production estimates are discussed under question 10. We have high confidence regarding the production of large, visible items which are the most costly items in the Soviet inventory. While we do not believe that any major Soviet weapons production programs have escaped detection, our estimates probably err in the direction of understating actual production to the extent that we fail to identify some of the smaller less visible items.

The methodologies we use in estimating the dollar prices that we apply to production estimates are described under question 11. To the extent that we have

to fall back on U.S. analogs when our knowledge of the physical and performance characteristics of Soviet systems is incomplete and that these U.S. weapons are more complex, our estimates tend to overstate the costs of producing the Soviet design.

OPERATING COSTS

Much less is known about operating rates for Soviet weapon systems. Information is available on such things as the time between overhauls for ships, on the number of flying hours for aircraft and mileage usage rates for ground force systems. In general, this information is much lower in quality and quantity than the data available on the types and numbers of weapon systems produced and deployed. Consequently, our estimates of Soviet operating costs are based largely on U.S. analogy and adjusted to reflect Soviet usage rates where possible.

EVALUATION

In summary, our estimates of the dollar outlays that would be required to purchase and operate Soviet military forces are limited by the Intelligence Community's knowledge of these forces and their changes over time. That knowledge, however, has been enhanced in recent years by sophisticated technical means of collection. Improved collection efforts have resulted in better descriptions of systems and programs. Such data permit more accurate estimates both of quantities and unit costs to be made. Nonetheless, our estimates should be viewed as having a margin of error, which for some items could be substantial. On balance, our best judgment is that the overall dollar estimate is not likely to be in error by more than 15 percent. It is important to understand that this judgment, although informed, is nonetheless subjective and not the result of statistical measurement.

Question 7. What assumption is made for the portion of total Soviet R. & D. spending allocable to military R. & D.? When was the assumption first made? What is the rationale for the assumption?

Answer. The Agency's response was classified.

Question 8. Our R.D.T. & E. budget has been divided into six categories: (1) research, (2) exploratory development, (3) advanced development, (4) engineering development, (5) operational systems development, and (6) management and support. Please provide estimates of the portions of Soviet R.D.T & E. spent in each of the six categories, and discuss the differences in U.S. and U.S.S.R. strategies with respect to emphasis on basic research as opposed to development, multiple designs, flyoffs, and numbers of prototypes.

Answer. The Soviets do not follow any general rule with regard to competition for weapons design. There appears to be some form of competition in most cases but the extent of competition varies.

In ballistic missiles, the Soviets typically have developed two designs for each operational requirement. At the conclusion of the test phase, one has received extensive deployment and the other merely token deployment.

This development strategy has been interpreted as competition. Another interpretation is possible. We know the Soviets are cautious relative to the United States about adopting new or radically different technology in their weapons design, and they require that new technology be demonstrated in prototype flight hardware prior to series production. Some analysts believe that the lower technology missile is developed as a hedge against the possible failure of the more advanced design.

Soviet aircraft are designed by a prototype-oriented system which has been in operation, essentially unchanged, for nearly 40 years. Requirements for new aircraft are established by either the Ministry of Civil Aviation or Defense and sent to the Ministry of Aviation Industry. The latter Ministry, in charge of all aviation research, and development, either disagrees with the requirement and seeks modification or agrees and orders the start of design. The Central Design Office issues the performance requirements to two or more of the ten design bureaus.

The design process starts with a preliminary design study. This phase takes only a few months to complete. Several preliminary design studies may be prepared to meet the requirement. From these, some are selected to continue into detailed design. Prototypes are produced and flight tested by the design bureau before a production decision is made.

Competition among design bureaus almost always exists in the preliminary design phase and, for more advanced aircraft, will continue through the detailed

design stages. There may have been a few instances where the competition has continued through the prototype stage with the winner chosen by a flyoff between the different prototypes.

With or without competition, the Soviets use a "fly before buy" system. They do not authorize production until a final and often modified version of the selected prototype has been approved. Through the 1960's aircraft design bureaus constructed at least three prototypes per program. In the case of fighter aircraft, as many as ten were produced. In the United States about 15 test aircraft are normally employed in fighter development programs.

In recent times the Soviets have developed more different missile and aircraft systems than the United States. By developing in many cases two missile systems to fulfill a given mission requirement the Soviets have produced 20 ICBM designs, the United States 7. The number of SLBM designs produced by both countries is much closer—6 by the Soviet Union and 4 by the United States.

The number of fighter aircraft designs flight tested since 1950 is about the same in the two countries—25 by the Soviet Union and 26 by the United States. This ratio has changed through time, however. During the fifties 17 U.S. fighter aircraft achieved first flight status compared to 8 Soviet aircraft. During the 1960's and 1970's, however, the situation reversed. The Soviets produced 17 designs and the United States 9.

Question 9. In last year's testimony you indicated that the ratio of direct personnel costs to operating costs was higher in the Soviet Union than in the United States. (See page 33 of the published hearings.) As pay scales for military personnel are far lower in the Soviet Union than in the United States, I would have assumed that the opposite would be the case. Please explain your findings.

Answer. The costs referred to on page 33 of the published hearings are in dollars. When estimating dollar personnel costs we use U.S. compensation rates—i.e., the cost of procuring manpower in the United States. Inasmuch as the Soviet force is more manpower intensive than the U.S. force, in dollar terms the ratio of personnel costs to total operating is higher in the Soviet force.

Question 10. Several private groups such as the Institute of Strategic Studies publish inventories of Soviet forces including number of types of weapons. Your estimates of the annual defense expenditures of the Soviet Union assume knowledge of annual production. Please explain how annual production estimates are derived for aircraft, missiles, ships, tanks, trucks, small arms, ammunition and other items.

Answer. The Agency's response was classified.

Question 11. What provision is made in your estimates of dollar costs to purchase Soviet forces for the austerity or complexity of the different types of weapons, or do you estimate the cost based on the nearest U.S. equivalent of each Soviet weapon?

Answer. Our dollar concept is the cost of producing the Soviet design in the United States using base year U.S. production technology, input prices and profit margins. Our ability to reflect the Soviet design depends to a large degree upon our knowledge of the physical and performance characteristics of the individual weapons. When we have good data, our cost estimates capture the "austerity or complexity" of the Soviet weapon. We have to fall back on U.S. analogs for weapons or components when our knowledge is less complete. In these cases we attempt to adjust the analog results by extrapolating from our general understanding of Soviet design practices.

When we have sufficient information we do engineering cost studies. Most of our costs are derived using cost estimating relationships (CER's) which are based on U.S. weapons costs adjusted to "Sovietize" the weapon. Some weapons—usually lower cost items—are costed on the basis of the nearest equivalent U.S. weapons.

To the extent that we are not able to "Sovietize", and U.S. weapons used in the cost estimating methodology are more complex, our estimates tend to overstate the costs of producing the Soviet design. This is probably the general case. It should be noted, however, that we have a number of cases where better information on Soviet weapons has shown them to be far more complex—and far more costly to produce—than we had previously estimated.

Question 12. What would be the cost in dollars for the United States to build the following Soviet systems: the Mig 23, the Krivak class ship, the ABM deployed around Moscow, the SST?

Answer. The estimates listed below are in 1973 U.S. dollars and are exclusive of R.D.T. & E. costs. The aircraft estimates are fly-away costs which do not in-

clude spares These costs would be much higher if spare enginees were included inasmuch as the Soviets normally use five engines per engine emplacement over the life of the aircraft. The U.S. spare practice calls for about 1.5 engines per engine emplacement over the life of the aircraft. We have neither the direct nor the analog information necessary to make a confident estimate of the dollar cost of the TU–144.

	Million 1973 dollars
MIG–23 (Flogger):	
Cumulative average cost for production run of approximately 1,000 aircraft	3
Krivak Class Ship: Cost of follow-on ship	55
ABM System around Moscow[1]	
Facilities, missiles and equipment at four launch locations	520
Early warning and battle management radars	1,040
Radar calibration satellites	600

[1] Does not include nuclear warheads or operating costs.

Question 13. Please discuss the method used to estimate the number of Soviet troops including the use, if any, of the Soviet tables of organization.

Answer. The Agency's response was classified.

Question 14. In last year's testimony you apparently used a method other than the direct cost or building block approach to estimate Soviet expenditures for civilian goods and services. For example, on page 52 of the published hearings, health expenditures in the U.S.S.R. are showed as only 32 percent per capita compared to the United States. However, there are more doctors per capita in the U.S.S.R. more hospital beds, and a system of comprehensive free medical care. Much the same can be said for education, shown as only 63 percent per capita compared to the United States. How are your figures derived and would the results be different if estimates were made for how much the United States would have to spend in dollars to replicate the same civilian expenditures in the Soviet Union?

Answer:

BACKGROUND

Question 14 concerns the methods and results of our comparisons of consumption in the United States and the U.S.S.R., with particular reference to the fields of health and education.

In the transcript of last year's hearing, pages 52 to 55 relate especially to question 14. The estimates on page 52 give Soviet per capita consumption as a percent of U.S. per capita consumption in 1972 as follows:

	Percent
Total	34
Education	63
Health	32
Personal services	32
Durable goods	9
Soft goods	19
Food	60

GENERAL COMMENTS ON RESULTS

These results stem from analytical work extending back more than a decade. Each comparison is our best judgment of a single number that represents a range of possible estimates. Because of conceptual ambiguities and the incomplete nature of both Soviet and U.S. data, however, the numerical results can only be approximations that support the following generalizations: (*a*) Soviet per capita consumption is a fraction of U.S. per capita consumption, with "about one-third" being a handy representation of the relation: and (*b*) Soviet per capita consumption—which is governed by the leaders' decision, not by free choice in the marketplace—is comparatively high in certain categories (food and education), comparatively low in others (durable goods and soft goods).

SUMMARY OF METHOD

To estimate Soviet per capita consumption as a percent of U.S. per capita consumption, we take the geometric mean of (1) Soviet per capita consumption

valued in rubles as a percent of U.S. per capita consumption valued in rubles, and (2) Soviet per capita consumption valued in dollars as a percent of U.S. per capita consumption valued in dollars. The attached report (*A Comparison of Consumption in the U.S.S.R. and the U.S.*, CIA, January 1964) [1] describes the methods and underlying data in a good deal of detail. The comparison can be summarized in the following formula:

$$X = 100 \cdot \frac{N_{U.S.}}{N_{U.S.S.R.}} \cdot \sqrt{\frac{\Sigma P_{U.S.} \cdot Q_{U.S.S.R.}}{\Sigma P_{U.S.} \cdot Q_{U.S.}} \times \frac{\Sigma P_{U.S.S.R.} \cdot Q_{U.S.S.R.}}{\Sigma P_{U.S.S.R.} \cdot Q_{U.S.}}}$$

"X"=Soviet per capita consumption as a percent of U.S. per capita consumption.
"N"=Population.
"P"=Unit price of a given consumption good or service.
"Q"=Quantity of that good or service.

Since we cannot identify the prices and quantities for all of the goods and services consumed by the Soviet and U.S. populations, we start with categories of consumption—representing both private and public expenditures as reported in the Department of Commerce accounts for U.S. GNP and as estimated from published Soviet data. We then value U.S. consumption in rubles and Soviet consumption in dollars to obtain the comparisons described above. The purchasing-power-parity ratios (ruble-dollar price ratios) derived in the attached report serve as the bases for these conversions. Calculated from an extensive sample of consumer goods and services in 1955, the ruble-dollar ratios have been updated year-by-year on the U.S. side with price indexes published by the U.S. Department of Commerce. Because Soviet consumption is estimated in constant 1955 ruble prices, the Soviet side of the price ratios does not need to be updated.

COMMENTS ON METHOD

Even if specifications, quantities, and prices of U.S. and Soviet goods were perfectly known, calculations of relative consumption would vary depending on which price system is used for valuation. In general, the comparison using ruble prices favors the United States, and the comparison using dollar prices favors the U.S.S.R. This is so because ruble-dollar ratios tend to be high on goods and services which the United States produces relatively more efficiently and low on goods and services which the U.S.S.R. produces relatively more efficiently. The geometric mean of comparisons in two different sets of prices is a compromise commonly used in making international comparisons.[2]

In fact, the establishment of specifications, quantities, and prices of Soviet goods is a painstaking task. Years of work by government and academic specialists have only partially overcome the serious deficiencies in the Soviet data and the inherent difficulties of comparing two quite different economies. In particular: (1) The Soviet economy is not designed to respond to price signals so that certain kinds of goods are not available (for example, a large number of additional housing units could be sold at existing or higher prices), (2) the range of choice is a key aspect of consumer welfare, and the question of choice still is not taken into account in our comparisons; (3) Soviet goods and services are generally of lower quality than U.S. goods and services, notable examples being housing, construction, health and education services, and maintenance and repair services. The allowances made for quality in our comparisons probably err on the conservative side; in the case of labor services in health and education, we apply a 20 percent quality discount based on a consideration of standards of training (for example, the number of years devoted to the training of doctors and teachers). A 20 percent quality discount is also applied to the machinery and construction components of new fixed investment.

Certainly the main problem with the method is its reliance on benchmark data almost 20 years old. The price indexes that are used to update the 1955 ruble-dollar ratios become less reliable as time passes. We have therefore been engaged in a general revision of all of our ruble-dollar ratios, including those for consumer goods and services. The new ratios will reflect Soviet and U.S. prices of the early 1970's.

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[1] A copy of the report may be found in the subcommittee files.
[2] See, for example, Paul Samuelson, "Analytical Notes on International Real Income Measures," *Economic Journal*, September 1974, p. 600.

THE 1973 COMPARISON OF HEALTH AND EDUCATION SERVICES

The comparison of consumption of health and education services in the U.S.S.R. and the United States covers current purchases of material goods and labor services; investment in buildings and equipment is classified in the new fixed investment component of GNP by end use. In the 1973 comparison, our procedure resulted in the following ruble and dollar comparisons:

	Billion 1955 rubles		Billion 1973 dollars	
	U.S.S.R.	United States	U.S.S.R.	United States
Current public and private expenditures on:				
Health	7.2	30.9	57.8	83.1
Education	12.3	21.0	77.7	77.4

Clearly, the U.S.S.R. does much better in a dollar comparison than in a ruble comparison. The reasons are that (1) the ruble-dollar ratios for wages of employees in health and education (0.07 and 0.11, respectively) are much lower than the ruble-dollar ratios for material purchases (0.71) and (2) the United States spends far more on material purchases per employee in health and education. Therefore, a ruble valuation gives greater weight to the heavy U.S. outlays on material purchases while a dollar valuation gives greater weight to manpower, favoring the U.S.S.R.

In health and education, as in the measurement of many services, comparisons must be made in terms of inputs—man years of labor and supplies of materials. The consequences of health and education services—healing, prevention of illness, training, knowledge—defy measurement. Although the U.S.S.R. may approach or even surpass the United States in the provision of individual inputs such as number of doctors, elementary school teachers, or hospital beds, these are poor indicators of the total quantity of inputs allocated to health or education. In the United States, for example, the range of services provided by hospitals and the equipment and drugs that are available for patient care markedly exceed the capabilities or the operating procedures of the typical Soviet hospital.[3]

Chairman PROXMIRE. The subcommittee stands adjourned.

[Whereupon, at 5:40 p.m., the subcommittee adjourned, subject to the call of the Chair.]

[The following information was subsequently supplied for the record by Mr. Colby:]

EXCERPTS FROM SOVIET LITERATURE ON THE NATO TREAT

1. COL. M. PONOMAREV, "IN CONFLICT WITH THE TIMES," KRASNAYA ZVEZDA, 19 JANUARY 1975, P. 3

The growing expenditures for military purposes are exerting a pernicious influence on the economies of the North Atlantic bloc's members since these economies are already in a critical condition. However, its leadership has resolutely rejected the attempts of individual countries—as was the case, for example, with the Netherlands last year—to cut back any military budgets somewhat. "Economic adversities must not serve as grounds for reducing military spending," the head of the Pentagon declared categorically, when addressing the allies.

Some people in the West are passing off the increase in arms spending as a medicine which is allegedly capable of curing the sick economy of the capitalist world. Ridiculing such prescriptions. Britain's OBSERVER wrote that military spending "will increasingly undermine and not strengthen the security and stability of the Western countries. They," the newspaper continued, "will be reminiscent of medieval knights who fall because of the weight of their own armour." Correct observation, particularly if one takes into account that it is not a question of cuirasses and hauberks, but of the most modern types of weapons with

[3] Because of the change in the range of services provided, measuring the real expenditures on health and education in the United States in 1950 and 1975 by the number of doctors and the number of teachers would also result in a substantial understatement of the difference in the volume of services provided.

[which] the NATO armies are continuing to arm themselves. Last year the air forces directorate was centralized and for this, the main staff of the European central zone NATO joint air forces was created and located at the Ramstein base (FRG). The air force providing direct support [to] the ground forces was strengthened and the air mobility of the units and formations has been increased. They have been equipped with means of combating tanks and airborne targets. Deliveries to the troops of new types of tanks, antitank guided missiles, mobile antiaircraft missile complexes, automated control systems, electronic countermeasures devices, and other latest forms of armaments have increased.

The overthrow of the fascist regime in Portugal, the downfall of the Athens junta and Greece's withdrawal from the military organization of NATO have caused the Atlantic strategists a great deal of anxiety. Greece's new government has established national control over foreign military bases. In search of something to "make up for" this loss, the leadership of the bloc has turned its attention, in particular, to the bases on Italy's Mediterranean islands which have been deserted since World War II. On the island of Pantelleria, for example, old barracks and roads are already being repaired under the supervision of U.S. specialists, and a large radar station is being built.

In parallel, plans have begun to be drawn up for NATO control over vast regions of the North Sea, where major oil deposits have been discovered. There is talk of the creation of a special naval formation and the location of armaments and NATO military personnel on the drilling rigs which have been built here, and also of declaring a number of sectors of the North Sea closed to shipping. All this is being done under the guise of protecting the drilling rigs from mythical "terrorists."

3. In addition to attempting to speed the arms race and the quest for new bases, during the past year the NATO staffs organized a major series of various kinds of maneuvers and exercises. The combat skill of personnel was improved and the bloc's operational plans were checked out and defined more precisely during these exercises and maneuvers. As a rule these maneuvers were in the nature of undisguised militaristic demonstrations.

A series of such demonstrations took place on the bloc's northern flank. Thus, maneuvers entitled "Cold Winter–74" and "Argus Express" were held in northern Norway close to the border with the Soviet Union. [paragraph continues]

Ground forces, aircraft and naval forces not only of Norway but also of the United States, Britain, Canada, the Netherlands and other countries participated in these maneuvers. During the maneuvers, operations under polar winter conditions were practiced, together with questions of the movement and utilization of NATO's mobile forces.

A number of naval exercises was also held on the northern flank. Among these we should single out the NATO naval and air force "Northern Merger" maneuvers which took place last September in the North Sea and the Baltic and in the English Channel. According to foreign press assessments, these were the biggest maneuvers of their kind since the "Strong Express" exercises of 1972. Some 200 ships, 700 aircraft and 40,000 servicemen took part in them, carried out assault force landing operations and practiced other combat tasks.

The NATO strategists displayed perhaps even greater activeness in central Europe, particularly on the territory of the FRG to which the Atlantic staffs have allocated the role of the main bridgehead for staging possible operations against the Warsaw Pact states. The biggest maneuvers here were the "Goldener Pfeil–5", "Cold Fire–74" and "Bold Guard" maneuvers with the participation of a large number of servicemen and a large quantity of combat equipment. But in their scale, they were all surpassed by the Bundeswehr's ground forces and air force maneuvers which took place under the code name "Schneller Wechsel" in September 1974. Some 80,000 soldiers and officers and 17,000 tanks, armored personnel carriers and motor vehicles were brought onto Bavarian, Baden-Wuerttemberg and Rhineland-Palatinate roads. This mass of troops demonstrated the increased combat might of the Bundeswehr and its ability to operate under conditions of modern warfare.

Immediately after the "Schneller Wechsel" maneuvers, the traditional U.S.-West German "Reforger–6" maneuvers took place, during which 12,000 servicemen were transported to the FRG from the United States. Then having obtained heavy armaments from depots in West Germany, together with Bundeswehr units and Canadian troops, they carried out a major exercise called "Sicherer Buergschaft" and held practice firings at the Grafenwoehr range.

The bloc's military leaders did not neglect NATO's southern flank either. They also organized all kinds of maneuvers and exercises in the Mediterranean basin and, in particular, ones called "Drum Free," "Dawn Patrol," and "Duty

Fan." For the most part these were combined maneuvers by the navies of the bloc's countries. Their nature was determined primarily by the tense military-political situation in the Eastern Mediterranean, caused by Israel's aggressive actions against the Arab countries and by the Cyprus issue which was provoked by certain NATO circles.

The results of the military-political activity of NATO's leading circles in 1974 show clearly that this organization remains, above all, an instrument for the implementation of imperialism's general class strategy. The bloc's entire structure is adapted for exacerbating the situation in the world arena and it is itself the center of attraction for the most reactionary aggressive forces. The exhaust gases of NATO's gigantic war machine still continue to poison the international atmosphere.

The political and military objectives which are being pursued in the headquarters and offices of the North Atlantic bloc and the means used for attaining these objectives are becoming increasingly incompatible with the positive processes in the modern world.

2. Col Yu. Yerashov, "The Eurogroup—a Branch of NATO," Krasnaya Zvezda, 17 April 1975, p. 3.

[Text] While criticizing certain West European NATO countries for their "insufficient" contribution to the buildup of the bloc's military might, U.S. Defense Secretary J. Schlesinger has at the same time spoken favorably of the activity of the so-called NATO Eurogroup. The American defense secretary quoted the group's decision adopted last December to improve the combat equipment level of the West European countries' armed forces in 1975 as an "example" of the way in which the bloc members' military efforts should be further directed.

In fact, year by year the Eurogroup has been advocating the continuation of the arms race and the broadening of its members' military and political cooperation, invariably doing this, furthermore, under the aegis of NATO—the aggressive bloc which sets the fashion in the intensificaton of the imperialists' preparations for war. Created within the framework of this bloc in 1968, Eurogroup, in the words of the Paris newspaper LE MONDE, has set itself the aim of strengthening the 'European prop' of the alliance, that is, of becoming the second "pillar of NATO" after the United States by actively contributing to the process of the West European countries' military integration.

The Eurogroup consists of 10 NATO countries: Britain, Italy, the FRG and others. During its few years of existence it has become a ramified organization with constantly operating working organs. Its leadership is exercised by the defense ministers of the member countries who meet twice a year—normally on the eve of NATO Council sessions. Materials for the meetings are prepared by a staff group consisting of high-ranking military and civil officials.

The Eurogroup's activity covers two main areas: military and political.

The military area concerns primarily the buildup of weapons, standardizing them, coordinating combat training, provision of troops for the rear services and so forth. The activities of the Eurogroup can be seen in the list of their working subgroups published in the NATO bulleting NOUVELLES ATLANTIQUES. Among them a leading place is occupied by "Euronad," the organ which formulates the principles of cooperation in the production and equipping of the troops with combat equipment and weapons. "Euronad" interacts with "Euroshed," the military technical planning subgroup. Questions of long-term military building planning are dealt with by "Eurolongterm." Problems of maintaining communications on the battlefields are dealt with by "Eurocom." The "Eurotraining" subgroup is engaged in coordination in the field of personnel instruction and the training of military specialists and the utilization of training areas and training centers. A rear services subgroup "Eurolog," a military medical services subgroup "Euromed" a subgroup for aircraft landing and control systems "Euroland," and so forth are also in operation.

Although the Eurogroup leaders are obliged to recognize the unpopularity of the arms race policy among the popular masses, they nevertheless rubberstamp one decision after another to allocate additional appropriations to create material resources for the training of troops. A 5-year "European Defense Improvement Program" (EDIP) appeared back in 1970. It provided for the formation of aircraft squadrons for the direct support of troops, for the purchase of these aircraft, for large consignments of heavy helicopters, for developing means of notification and communication and so forth. A sum of $1 billion was allocated for the implementation of this program. However, the EDIP's financial proposals for the future were soon exceeded. In 1972, the Eurogroup allocated for military

purposes more than $1 billion over and above the budget appropriations, in 1973—$1.5 billion more, and in 1974—$2 billion more (the actual increase in military expenditure in 1974 amounted to $4.5 billion). Nevertheless, the Eurogroup December 1974 session approved the entire program and announced in the final communique that in 1975 further increases in the member countries' military budgets are envisaged.

The Eurogroup leadership lays particular stress on equipping the troops with up-to-date combat equipment and weapons. In 1975 it is planned "to improve the military potential" of the 10 West European countries by supplying them with—in particular—563 tanks, 1,157 armored personnel carriers, 378 aircraft and helicopters, 836 antiaircraft missile launchers, 530 antiaircraft guns and 22 surface ships and submarines. Furthermore, a broad program for the modernization of existing weapons on the basis of the latest achievements of electronic, missile and laser technology covering the period up to 1978 has been adopted.

At their December meeting the defense ministers heard reports presented by six working subgroups and affirmed West Europe's "need" to maintain "a strong and viable" military industry. They advocated an improvement in the process of consultations in the sphere of scientific research and experimental design work, in the production and purchase of the most important types of weapons, and in the implementation of various projects in the next 10–15 years.

CENTRAL INTELLIGENCE AGENCY,
Washington, D.C., September 5, 1975.

The Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Priorities and Economy in Government, Joint Economic Committee, U.S. Capitol, Washington, D.C.

DEAR SENATOR PROXMIRE: It was a pleasure for me to accompany Mr. Colby when he appeared before the Subcommittee on Priorities and Economy in Government and discussed the economies of the Soviet Union and Communist China. At that hearing, we agreed to provide the Committee with some background on our projections of future costs of Soviet defense programs and on the index number problem regarding comparative U.S. and Soviet defense costs.

PROJECTIONS OF SOVIET DEFENSE COSTS

You requested a five-year projection of Soviet defense costs based on the "building-block" method. While we can and do use our building-block results in making generalized projections of the likely direction of overall Soviet defense expenditures, the method does not lend itself to making numerical projections for more than one or two years into the future with any confidence. A few comments on how we make our building-block estimates may help explain the problem.

The process starts with detailed estimates of current and past military activities and forces and similar projections for the future. These estimates and projections reflect the most likely forces estimated and projected in the various National Intelligence Estimates (NIEs). For those forces not covered by NIEs, CIA makes its own estimates and projections.

We have good confidence in these force projections for about two or three years into the future. This is because we usually have good evidence on the major development and deployment programs currently under way and can project their progress with good confidence. Projected programs which have not yet reached observable stages of development and which will not enter the forces for four or more years, however, are based on much more tenuous indicators and are therefore much less certain.

Our cost estimates are derived from these force estimates and projections. The costs in any given year are determined in part by the forces estimated for that year and in part by forces estimated or projected for years up to three years later. Our ability to project forces for these years permits us to make reasonably confident estimates of current Soviet defense costs using the building-block method.

Experience shows that use of the building-block method for estimating future costs yields results which show an increasing downward bias the further the projections extend into the future. This is partly because our force projections for systems not yet in observable stages of development fail to account for all of the cost generating activities or important details on the new systems for accurate

costing. Moreover, our cost estimating techniques for systems of the future have tended to understate the costs which eventually prevail.

Our estimate of Soviet defense spending shows a long-term upward trend with growth rates averaging about three percent per year. This growth rate is not constant but shows a cyclical pattern, however, resulting primarily from fluctuations in procurement costs associated, for example, with the deployment of succeeding generations of ICBMs.

With deployment of their new generation ICBM programs in full swing, Soviet defense spending is now in the expansionary phase of the growth cycle. The general pattern during the present cycle is consistent with past cycles, however, and the growth rate of spending probably will taper off in 1976–1977 as the new wave of deployment of ICBMs approaches completion. If the past pattern of Soviet defense programming repeats itself, the growth rate should turn up again by the end of the decade with the beginning of another round of strategic force modernization.

THE INDEX NUMBER PROBLEM

As you indicated, our dollar cost comparisons of U.S. and Soviet defense activities do have a systematic upward bias favoring the Soviets. This reflects the basic measurement problem known to economists as the index number problem. Given different resource endowments, countries tend to use more of the resources that are relatively cheap in their economy—and less of those that are relatively expensive—for a given purpose. In a bilateral comparison, drawn in terms of the prices of one country, this results in a tendency to overstate the relative value of the activities of the other. This tendency is more pronounced the greater the disparity between the economies.

The index number problem is common to all international comparisons of economic activities. In the USSR, manpower is relatively cheap compared with the U.S. and, conversely, equipment is relatively expensive. The Soviet defense effort is relatively manpower intensive and the U.S. effort relatively equipment intensive. As a result the relative size of Soviet compared with U.S. defense programs is larger when both are costed in dollars than when both are costed in rubles.

The important question, of course, is the magnitude of the difference. Our very rough calculations suggest that the comparison in rubles is not radically different from that in dollars. The resulting trend in the ruble comparison does correlate closely with the trend in dollars. For 1974, the estimated cost of Soviet defense programs is about 20 percent higher than comparable U.S. programs in dollar terms and about 10 percent higher in rubles. Additionally, the dollar comparison shows Soviet activity exceeding that of the U.S. for the first time in 1971 while the ruble data indicates a crossover point in 1973.

There are significant technical and theoretical problems with our ruble cost calculation for U.S. defense activities, however. These indicate that our measurement probably tends to understate the ruble cost of U.S. programs. We have no direct information for estimating Soviet costs of producing U.S. military equipment. Rough ruble cost estimates are derived by applying a few highly aggregative ruble-dollars ratio to the U.S. expenditure data. Moreover, these ratios were originally designed to convert the estimated dollar cost of Soviet programs into rubles and reflect the Soviet mix of weapons rather than the U.S. mix. Finally, such U.S. expenditure categories as "contingency funds" and "other" defy high confidence conversion into rubles.

These data problems are exacerbated by an insoluble conceptual problem that arises from the different technologies in the two countries. While virtually all of the Soviet inventory of weapons falls within U.S. production technology, the Soviets simply do not have the technology required to produce many of the U.S. weapons nor could they produce close substitutes. Theoretically, the ruble price for these more advanced weapons is infinite. Economic theory does not have a satisfactory solution for this problem.

We recognize the index number problem along with the tendency to misuse the dollar cost data as measures of relative military capability. In communicating our dollar cost estimates we take pains to explain that they represent simply the cost of reproducing Soviet defense activities in the U.S. and should not be interpreted as measures of military capability.

Sincerely,

EDWARD W. PROCTOR,
Deputy Director for Intelligence.

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1975

MONDAY, JULY 21, 1975

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON PRIORITIES AND
ECONOMY IN GOVERNMENT OF THE
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:05 a.m., in room S–128, the Capitol Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire and Taft; and Representative Brown of Ohio.

Also present: Richard F. Kaufman, general counsel; Ronald Tammen, legislative assistant to Senator Proxmire.

OPENING STATEMENT OF CHAIRMAN PROXMIRE

Chairman PROXMIRE. The Subcommittee on Priorities and Economy in Government resumes its hearings this morning on the Soviet Union and the People's Republic of China budget. This hearing is held to try to get an understanding of the size of the military budget of the Soviet Union and the People's Republic of China because, obviously, it is enormously important to us. Much of our military spending is based on our estimates of what our potential adversary may be spending.

As you may know, General Graham, we had Mr. Colby, Director of the CIA, testifying before us and he gave us his estimate several weeks ago. I understand that you have served with the Central Intelligence Agency. You are now head of the Defense Intelligence Agency. You have a fine background. We are very grateful for you coming up to testify. We do hope that the hearings will be sanitized and made available to us for public disclosure and disclosure to other Members of Congress.

I say that because this particular committee, the Joint Economic Committee, has no legislative responsibility. The function we perform is a factfinding, investigative, analytical function, to try to help other Members of Congress understand our economic problems and to do that, of course, we have to make public reports. It is very hard to get Members of Congress to read reports that are not publicized. It is impossible to debate them or discuss them in public. I think that it is important also to get a public understanding of the kind of military power our adversaries have and that our best intelligence indicates what they have.

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For that reason we do hope that we can sanitize these as soon as possible and as fully with as little remaining secret, although I am sure some of it will have to that cannot be disclosed.

You may now proceed. Do you have a copy of your statement?

General GRAHAM. Yes, sir, I do.

Chairman PROXMIRE. Fine.

General GRAHAM. I am happy to have this opportunity to talk to you and your committee, sir. I have some slides here and a statement. If we do not get through all of it, I have answers to all of your questions, I hope, for your record.

Chairman PROXMIRE. We would appreciate that. After you have sanitized it whether you have covered the statement, we will print what you sanitize in full.

General GRAHAM. Very good, sir.

STATEMENT OF LT. GEN. DANIEL O. GRAHAM, U.S. ARMY, DIRECTOR, DEFENSE INTELLIGENCE AGENCY, ACCOMPANIED BY CAPT. WALLACE GREENE, U.S. NAVY; AND CAPT. AUSTIN O'BRIEN, U.S. NAVY

SOVIET MILITARY EXPENDITURES

General GRAHAM. Senator, the first item on your list of questions is that of Soviet military expenditures. Let me state from the outset that I have been highly skeptical of intelligence estimates in this area for several years. I think a bit of background on this skepticism is in order.

DISAGREEMENT WITH CIA OVER COSTING METHODOLOGY

Your question on Soviet defense budget exposes the only area where there has been any really fundamental differences of opinion between DIA and CIA on Soviet military matters over the past several years. Even this is not a bureaucratic DIA–CIA argument. This difference has been based on an honest difference of opinion about the validity of analytical methods. It was not based on a Pentagon desire to inflate the Soviet figures. There were skeptics and supporters of the costing methodology in both DIA and CIA. I was as much an agnostic working for Mr. Helms and Mr. Colby as working in DIA. I believe that I can substantiate these averrals with some history of the problem.

In the early 1960's, when cost-effectiveness studies had become the sine qua non of defense planning, a strong demand arose for cost data on Soviet forces. Since the dollar was the indispensable yardstick in these studies, the demand was for dollar figures on Soviet programs. CIA, with considerable assistance from the Pentagon, turned to and created a methodology to produce such figures. Since Soviet published figures for defense spending are obviously phony, an indirect approach was required. This involved essentially the toting up of all visible Soviet programs, estimating what it would cost to duplicate the program in the United States, and then, to get back to rubles, estimating the relative efficiency of the Soviet system by means of a ruble-dollar ratio. In the very few cases where there was some evidence of Soviet ruble prices for equipment, the system was worked backward to get a dollar figure.

In retrospect, I think the effort was a mistake, and a costly one since it consumed sizable resources in computers, analysts, and contractual support to produce a suspect result. The intelligence community should have responded to the request for dollar figures for the Soviet defense budget with a firm "no." This attempt is the quintessence of mirror-imaging, which is one of the biggest bear traps on the road to objective intelligence estimates. Any attempt to measure the efforts of a command economy such as the U.S.S.R.'s in terms of the currency of a free economy such as ours is doomed to produce misleading results. I doubt that the Soviets, with full access to the data denied to us, could produce a valid dollar value of their defense efforts.

Dollar Figures Suspect

Now let me back off a bit from this atheistic point of view to a more agnostic one. First of all, I assure you that I don't blame the CIA and the rest of the community for trying hard to answer the questions posed about the Soviet defense budget. I am sure I would have applauded the effort and the "can do" attitude at the time. Further, there is a value to this effort when applied to individual, highly visible weapons programs. If the costing methodology is applied consistently to, say, ICBM's, it can provide valuable insights into trends in Soviet spending on that particular item. However, the absolute value figures remain suspect, and the aggregation of such figures into a total budget number is highly suspect.

In early 1972, while I was deputy director of DIA for Estimates, the problem of the costing methodology was brought into sharp focus for me. I was charged with the community effort to make detailed projections of all Soviet military forces over a 10-year time frame. One section of the projections covered costs. The CIA-DIA costing methodology was applied to those projections. When I got the results, I rejected them. We had always carried in such projections—this was true when CIA was doing them and when DIA was doing them—a caveat stating that users must not add up the high sides of all the spread figures in the numerous projections because such efforts would place an intolerable strain on the Soviet economy. I believed that then, and believe it now with respect to DIA's current projections. But the costing methodology purported to show that the Soviets could handle the costs of all high side estimates in all types of forces with a constantly decreasing percentage of GNP. I simply did not believe that.

A little later that spring, when we were coordinating an NIE on Soviet military policy, CIA provided a costing input covering the history of Soviet forces from 1960 through 1971. It showed a very small average increase in the Soviet budget. This, too, I found utterly unbelievable. During that time frame, 1960–71, the Soviets had gone from a handful of ICBM launchers to over 1,500 for five different systems, produced over 50 missile-launching submarines, created a highly sophisticated military space program, introduced a new bomber, introduced five new fighters, deployed several thousand SAM launchers, deployed a large force opposite China, activated about 20 more divisions, and so on. This is only a partial list of the reasons I found the results of the costing methodology simply not credible. It could not be done with a very small average increase in the budget.

If I could digress for a minute, this is a portrayal of the input from the costing methodology as it applies to strategic forces from the time frame 1960 to the end of 1971. You will note this is in rubles. The ruble figure for 1971 was only one-thirtieth higher than that for 1960. These lines [indicating] represent deployment programs of various kinds of Soviet equipment. In 1960, the Soviets had deployed some of their MR/IRBM force. They had a few submarines, some of them diesel and a few nuclear-powered submarines with two or three missiles aboard. They had in 1960 a Bear bomber and a Bison bomber in their long range aviation force. When you get out here to 1971, they had completed deployment of several hundred MR/IRBM's. They had deployed all these ICBM's here [indicating], for a total of over 1,500 versus a few ICBM's in 1960. And they had a new silo program, [deleted] silos under construction. They had a Y-class submarine program. They had put a new bomber in the force, the Blinder. This [indicating] represents a great many air-to-surface missiles, and [deleted] added since 1960.

I was supposed to believe from the costing methodology that they could run the whole force and all the deployment going on for only [deleted] billion rubles more than——

Chairman PROXMIRE. Do you show a dollar cost there anywhere, General? Do you have that in your presentation?

General GRAHAM. No, sir, I do not have the dollar cost.

Chairman PROXMIRE. I understand the dollar cost shows quite a different figure.

General GRAHAM. Not at that time, sir. Now the dollar costs show a considerable difference.

I will talk to dollar costs a little bit later. That is enough of that.

[Deleted.] As to dollar presentations, I will probably retain my basic distrust of results. They are simply misleading.

[Deleted.]

RESIDUALS

Some analysts, noting that the Soviets are less secretive about aspects of their budget other than military, have approached the problem by identifying nonmilitary expenditures and counting unexplained residuals as defense-related. This has yielded figures in the 56 to 57 billion ruble range. In the light of this evidence and estimates of Soviet GNP [deleted], the percent of GNP devoted to defense rises [deleted] to 15 percent or more. Further, the 56 to 57 billion range does not include such things as pensions for retired military, which are carried in the Soviet social security program, or the military training provided by the Ministry of Education, both at the secondary and higher levels.

CHINESE DEFENSE BUDGETS

The problems I have related with regard to dollar costs of Soviet programs are even worse regarding Chinese defense budgets. However, I will give you what we have in answer to your question about China.

This graphic shows our estimate of the dollar cost of Chinese military procurement, by type of equipment, for the period 1970 to 1974. These figures indicate approximate dollar values of estimated PRC military procurement for major items only. This does not include as-

sociated costs for R.D.T. & E., for which figures are presently unavailable. The category other includes estimates for nuclear warheads, ammunition, electronics and miscellaneous equipment. This estimate does not give us a measure of the absolute level of outlays, or the burden of the military on the Chinese economy. However, the comparison of estimated dollar costs for procurement between the PRC, the U.S.S.R., and the United States does give us a general indication of the order of magnitude of military production outlays.

Soviet and Chinese Military Assistance

One last expenditure category that I will address today is Soviet and Chinese military assistance to selected foreign nations. My comments are limited to aid provided to countries with which the Soviets and Chinese are not alined. [Deleted], because of the potential significance of this aid in facilitating Soviet and Chinese penetration of these particular areas and in fostering insurgencies and subversion. This limited focus, we believe, helps give us a better insight into the use of military assistance by the Soviets and the Chinese.

The estimated total value of U.S.S.R. and PRC military assistance to free world nations during the period 1965 to 1974 is over [deleted] and [deleted], respectively, for a total of over $10 billion.

Forecasting Efforts

Having touched on the remarkable military expenditures that have occurred and continue to occur in the U.S.S.R., I will turn now to a second major area of interest to you—that of the intelligence community's track record in predicting Soviet trends and developments. This will be followed by a summary of the changes in the Soviet force structure over the past 10 years as well as projections on their development, as you requested.

In the interest of time, Mr. Chairman, I will confine my remarks on the intelligence community's track record to the three items requested in your letter—ICBM's, MIRV's, and aircraft carriers. Please bear with me if the next few slides are complicated. This is a problem we have in trying to portray a history of projections, each of which covers several years. The key to these graphics is the line representing the actual order of battle. Everything above the line constitutes overestimation, and everything below the line constitutes underestimation.

ICBM's

This first group of projections typifies national estimate biases in past forecasting efforts. That is, we have tended to overestimate the pace at which programs are introduced in the early stages of deployment and have underestimated the ultimate magnitude of Soviet programs. As seen here, the levels of operational ICBM's were initially overestimated, but the actual order of battle in later years far outstripped our projections. The explanation of this disparity is simple: The available indicators said loud and clear that a large, high-priority program was underway. These indicators included such things as [deleted] and open-source statements.

[Deleted.]

Senator, if I may depart here for a moment, this "we" bothers me. When I say "we" here, it is really an editorial "we." It is as if DIA existed in those early days. It did not, so I cannot be speaking for DIA.

What I am speaking for is the community position. The fact of the matter is I was heavily involved with the Army in those days. In these estimates in here [indicating], it was up to about 1963 that DIA was not involved at all. It did not exist. The Army estimate was down here [indicating] where the truth was, along with the Navy. These overestimates here are the view of the Central Intelligence Agency at that time, Mr. Dulles and later Mr. McCone. As far as the Pentagon was concerned——

Chairman PROXMIRE. How about the Air Force?

General GRAHAM. The Pentagon was out of the estimate altogether. The Air Force had a figure way up here somewhere [indicating]. If you grant that the Army and Navy are at least two-thirds of it, of the Pentagon, two-thirds of us were right. We were down here saying "few, if any." I had to write those dissents, so I know about them.

These figures in here [indicating] were the community view and excluded everybody in the Pentagon. The Air Force was way up here and the Army down here.

Chairman PROXMIRE. Everybody seemed to buy it? The Air Force?

General GRAHAM. No, they did not. Nobody bought the Air Force view except the Air Force, sir.

Chairman PROXMIRE. Congress?

General GRAHAM. Congress, maybe. I am talking about the intelligence community.

The Air Force problem was that they were going on what is required, you know. They had sort of a requirements view of how many the Soviets would deploy. The Army and the Navy were looking at the evidence and saying that the evidence simply did not support it. The others got themselves between the requirements and the evidence and came up in the middle with those spreads there.

To get back to my statement here, we estimated [deleted].

Chairman PROXMIRE. I want to make sure I understand that graph. This graph shows a prediction in 1964 going out to 1970, right?

General GRAHAM. Yes, sir. Where it starts it indicates the year the estimate was made and the shaded area shows how far the estimate projected forward. Back in those days we were not trying to predict very far ahead. We would——

Chairman PROXMIRE. How about 1970 to 1974? I see you go up to 1970.

General GRAHAM. That's covered by estimates made in 1965 through 1969, which estimate for the time period through 1974. I will show you some additional charts which will cover this.

Chairman PROXMIRE. The estimates are only made up to 1964.

General GRAHAM. In these days we only project it—let me back off.

On this line, that is the last estimate, the one made in 1964. These [indicating] are what we were projecting.

Chairman PROXMIRE. If you had it for later dates, would it show direction compared with the actual?

General GRAHAM. Yes. We will show the later dates. The projections that are represented on this graphic were made up through the year 1964 to cover future years, such as 1969 and 1970.

As I said, it is awfully hard to portray numerical spreads graphically over time.

At any rate, by 1960 we saw another program coming along which was the SS–7 and [deleted] indicated they had a big program in mind.

On the next chart, you see we have the 1965, 1966, 1967, 1968, and 1969 projections. The reason they get hazy out there in the long term and turn into dotted lines is that the estimates did not use specific numbers for the out years. Instead, there was discussion in the text which indicated the kind of spread shown on the chart.

During this time period, the Soviets began deployment of the SS–9 and SS–11 ICBM's, and did so at a rate much higher than expected. Thus, during this time period our projections were consistently underestimations of the Soviet effort. Our failure to grasp the magnitude of the Soviet program seems to have been related to the fact that we had been burnt in the early 1960's. Another reason may have been that we expected more qualitative improvements which could have caused a slower deployment rate than occurred.

DIA has generally agreed with the national estimates on future ICBM developments. One exception occurred during the time period portrayed by this chart. In the 1965 national estimate, the majority view held that the high side of the projection, represented by the dashed blue line, should indicate [deleted] ICBM's to be operationally deployed by the year 1970 and [deleted] deployed by 1975. DIA disagreed and registered a footnote to the estimate stating that in their opinion these totals were too high and would not exceed [deleted] by 1970 and [deleted] by 1975. As I indicated earlier, we believed that Soviet emphasis would be directed toward qualitative improvement rather than quantity. As you can see, the actual level of Soviet deployment in 1970, 5 years after the estimates were made, exceeded both projections.

Let me add another footnote here. You probably recognize that my drawing attention to the fact that DIA footnoted a CIA estimate as being too high constitutes something of an assault on the conventional wisdom. [Deleted.]

This next graph shows that it was not until 1970 that our estimates began to catch up with the actual Soviet level of deployment. Unfortunately, we began to underestimate again in 1972. Since the interim SAL agreement of 1972 prohibited new silo construction, our estimates published in 1972 and 1973 were merely reflections of existing silo programs. In other words, we projected nothing more than what was going on at the time of those agreements.

MIRV's

We also overestimated the initial date when the Soviets would deploy MIRV's, by projecting their initial deployment in 1971. In actuality, this did not occur until 1974. The reason for this overestimation is the same as that given for our initial overestimation of ICBM deployment. We had good indicators at the time of projection to justify the estimates. In fact, the continuing evidence of qualitative

improvement was a prime contributor to our underestimation of ICBM deployment and overestimation of MIRV deployment dates. Moreover, it seemed logical at the time that the Soviets would try to use their advantage in throw-weight by equipping their ICBM's with MIRV's which could serve a double role—first of overwhelming the then-programed U.S. ABM force and second of permitting multiple targeting, which in turn increased Soviet flexibility with respect to limiting damage.

The Soviets did not do this as early as we had thought they would. But, again, it is now apparent from the [deleted] that the size of the ultimate Soviet MIRV program will have been underestimated. Where we had projected two MIRV'ed systems of three to six warheads, the Soviets developed three MIRV'ed ICBM's with four to eight warheads. It now appears that a large portion of the ICBM force will be MIRV'ed, thus providing the Soviets with significantly more warheads than previously estimated.

Helicopter and Aircraft Carriers

Our estimating bias in the case of helicopter and aircraft carriers was again one of overestimating initial deployment. The slower introduction that actually occurred is believed to have been caused by two major factors: First, the U.S.S.R.'s lack of previous experience in the construction of air-associated ships extended the building time and fitting out period. [Deleted.] A second factor appears to have been the deliberate decision on the part of the Soviets to defer construction of the first aircraft carrier in order to gain additional experience in operating air-associated ships at sea.

There are now two units of the Kiev-class aircraft carrier in the Soviet Union. [Deleted.] Our best estimate is that the first unit will reach the fleet in 1976, with the second becoming operational in 1978. [Deleted.]

Chairman Proxmire. Do you have any notion of how many additional units, how many additional aircraft carriers?

Captain Greene. We estimated perhaps [deleted]. It is just speculation on our part.

Senator Taft. What is the size of the ship?

Captain Greene. The size of our Essex class, World War II.

Senator Taft. They cannot operate conventional aircraft?

Captain Greene. Only short takeoff/vertical takeoff types. [Deleted].

General Graham. They are not comparable.

Chairman Proxmire. They are not quite helicopter carriers, but V/STOL carriers.

General Graham. That is right. We have a handle on the aircraft that they are going to use on the thing. [Deleted.]

Senator Taft. Do we know whether they are working on a TAW development such as ours?

General Graham. I do not think so.

Chairman Proxmire. Is there any indication that they will have a true carrier of our kind?

Do you have any estimates of that?

General Graham. No. I would expect them to try to gain experience with this sort of Essex type before they get into the higher technol-

ogy and confront the problems associated with U.S.-type aircraft carriers.

Representative BROWN of Ohio. If our Pentagon is taking off on the Navy for having gotten Presidential approval on the nuclear cruiser, who is wrong strategically here in terms of where we are headed?

This is a nuclear vessel, is it not?

General GRAHAM. No. This is conventional.

Representative BROWN of Ohio. I beg your pardon. Let me pass the question.

General GRAHAM. As an intelligence officer I keep staring at the other side. I am really not competent to answer that question for you.

BROAD OCEAN NAVY

Representative BROWN of Ohio. Suffice it to say that they are expanding their navy beyond just a submarine navy.

General GRAHAM. Indeed, they are. As a matter of fact, one of the fundamental surprises to the whole intelligence community in the 16 years that I have been in the business is the strong effort the Soviets have made to get themselves a broad ocean navy. I am impressed by what Admiral Gorshkov says about it, that it is extremely important to the Soviets, both in military and political terms, to have that navy at sea. And they have invested a great deal of resources and a great deal of effort. It is a tough thing for the Soviet Navy to come up with that kind of capability. Their seas are landlocked. They have got to get out of the North Sea between the ice and Norway. They have to get out of the Black Sea through the Dardanelles. They have to get through the Sea of Japan.

They have a tough problem. They have committed the necessary resources to take care of it.

Chairman PROXMIRE. Could that not mean that they could be bottled up very easily?

General GRAHAM. They could be bottled up. Not easily, Senator, but they can be bottled up if you capture them in there.

Chairman PROXMIRE. That is where one of those bases has to be.

Representative BROWN of Ohio. Where aside from the base on the eastern tip of Africa do they have bases outside of these bottlable places?

General GRAHAM. They do not have true bases that qualify in the sense of a Subic Bay. They do have a lot of anchorages, and they have developed afloat logistics so they can support the fleets outside their home waters, with resupply by their merchant fleet and their navy auxiliaries.

Chairman PROXMIRE. Go right ahead, sir.

General GRAHAM. I will now discuss the past and future trends in the various Soviet force structures in more detail.

SOVIET STRATEGIC OFFENSIVE FORCES

From the standpoint of U.S. survival, the most dramatic change has been in Soviet strategic offensive forces.[1] This phase of Soviet history has been well publicized, and I need only review the highlights of the component programs.

[1] See fig. 1, p. 141.

The greatest rate of growth was noted in the number of ICBM silos. Over [deleted] SS–9 and over [deleted] SS–11 silos were constructed during the 1966 to 1975 time frame.

This period also saw the mass production of the Yankee-class submarine, which carries 16 SS–N–6 ballistic missiles. This platform is a carbon copy of the U.S. Polaris submarine. Thirty-four such units were produced, for a total of about 540 launch tubes. The only leg of the Soviet strategic triad whose numbers declined was the intercontinental bomber force. The decline, however, was minor—from 160 strike aircraft in 1966 to about 140 in 1975. Incidentally, we always predicted the decline of that bomber force at a faster rate than it ever occurred. As of today, the combined total of strategic offensive delivery vehicles stands at just over 2,400.

Looking ahead to the next 5 years, we foresee further refinements in the strategic weapons mix. We estimate that there will be a slight decline in the number of ICBM's (but not capability), a continuing growth of the SLBM force, and—to the extent that Backfire should figure into the intercontinental strike force—a potential increase in the number of bombers. The projected decrease in ICBM force levels is based on the phaseout of some 210 older SS–7's and SS–8's as stipulated in the interim SALT agreement of 1972.

Chairman PROXMIRE. Do you have some charts showing warheads?

General GRAHAM. I will have the captain look. We might have them. If not, we can get them for you.

Returning to the subject of delivery vehicles, the cumulative total curve projected here exceeds the 2,400 ceiling cited at the Vladivostok understanding in 1974. Should this limit be formalized by treaty, we believe the Soviets would continue to retire older systems as necessary in order to stay within the agreed ceiling, which would become effective in 1977. It should be noted that the Soviets are insisting that Backfire not be included against the 2,400 ceiling.

BACKFIRE BOMBER

Senator TAFT. What is the range on Backfire?

General GRAHAM. Backfire, if you fly it with its wings extended, is a better aircraft for intercontinental attack than the Bison, which is figured in the totals for intercontinental attack. We know the aircraft has the range capability against the United States and we have to watch what they do with it. It has refueling capabilities and so forth. We have to look at its potential as an intercontinental bomber.

However, you have to read Soviet intent to figure exactly what they are going to do. They may, by not staging it into their Arctic bases, give a strong indication that is strictly for peripheral.

Chairman PROXMIRE. Was it not the expressed opinion of the Secretary of Defense that Backfire is entirely for medium-range bombing against European or Asiatic targets rather than this country?

General GRAHAM. No. I think that he has stated, as we have all stated in intelligence, that Backfire is better at peripheral than intercontinental operations because on shorter missions it can make better use of its supersonic capabilities. Backfire uses up an awful lot of fuel on supersonic missions, in which its wings are swept back. But, flying subsonically with wings extended, it can reach the continental United States.

[The following additional information was subsequently supplied for the record by General Graham:]

THE SOVIET BOMBER BACKFIRE

In his *Annual Defense Department Report FY 1975*, Secretary Schlesinger stated the following regarding the role of the *Backfire:*

"The question of range and primary mission of the Backfire has yet to be fully resolved. It now appears that the latest model will have a greater range than estimated for the earlier model. This factor, coupled with its known refueling capability, would seem to indicate that the Backfire could be used as an intercontinental as well as a peripheral bomber, the role for which it appears best suited."

In his *Annual Defense Department Report, FY 1976 and FY 1977*, Secretary Schlesinger stated the following regarding the role of the *Backfire:*

"The Backfire B bomber is clearly designed for air-to-air refueling. It is now generally agreed that with this refueling capability, staging through arctic bases and flying a high altitude subsonic profile all the way, the Backfire B could cover virtually all targets in the U.S. and return to the Soviet Union. On one-way missions, recovering in nonhostile territory in the Western Hemisphere, the Backfire B, flying subsonically, could operate from its home bases without any tanker support. The extent to which Backfires will be assigned missions against the continental United States, however, remains an open question. We must await evidence from basing, operational and training patterns, or tanker development before we can confidently judge whether the Soviets intend the Backfire for intercontinental missions and, if so, to what extent.

"The number of older bombers in Soviet Long Range Aviation, particularly the intermediate range Badgers, continues to decline, albeit at a relatively slow rate. Inasmuch as the Backfire B is expected to initially enter the force at a moderate rate and be assigned first to the peripheral mission, we can assume that the older intercontinental long range bombers, the Bison and Bear, will be continued in the force for some time to come."

Chairman PROXMIRE. All right, sir.

STRATEGIC DEFENSES

General GRAHAM. Supplementing the buildup in theU.S.S.R.'s offensive arsenal has been a steady upgrading of Soviet strategic defenses. This development holds clear implications for U.S. retaliatory capabilities in that it lowers the chances of successful penetration of Soviet aerospace.

PVO Strany, the air defense branch of the Soviet Armed Forces, is known to have [deleted] the antiaircraft missile troops, who man the surface-to-air missile units; APVO aviation, which operates the fighter interceptors; and the radio-technical troops, who operate the radars and associated electronics systems. [Deleted.]

The strategic missile defenses include the SA–1, SA–2, SA–3, and SA–5 systems.[1] Deployment of these systems accounts for over [deleted] launchers at nearly [deleted] sites and complexes throughout the country. The rise in launcher levels during the late 1960's and early 1970's reflects the introduction of the SA–5 system and [deleted] deployment of SA–3's. This activity tended to offset the deactivation of [deleted] SA–2 sites. More recently, however, [deleted] the number of total launchers has fallen off somewhat. Our estimating record with SAM's is a mixed bag. [Deleted.]

Looking ahead, we expect a [deleted] decline in launchers over the next [deleted] years or so, due largely to the further withdrawal of SA–2s [deleted]. Then a [deleted] drop is projected [deleted] when

[1] See fig. 2, p. 142.

deactivation of some [deleted] SA–1's [deleted]. Even so, the Soviets will continue to have substantial SAM defenses throughout the period.

The Soviets have also placed considerable emphasis on qualitative improvements to their manned interceptor force. In fact, the fairly steady decrease in the number of APVO interceptors since the mid-1960's can be attributed directly to the replacement of pre-1957 aircraft with modern, more sophisticated models.[1] The higher cost of these new systems, coupled with their increased effectiveness, led the Soviets to replace older aircraft on a less than one-for-one basis. The [deleted] replacement models [deleted] have advanced weapon systems, [deleted] plus all-weather, high-speed, high-altitude capabilities. In contrast to the situation in the early 1960's, all of the [deleted] interceptors today have an all-weather capability.

The [deleted] numerical decline shown here in our projections is predicated on the complete phaseout of pre-1957 aircraft [deleted]. Moreover, little new production of interceptors is forecast until the introduction of a [deleted] fighter in the [deleted] time frame. Basically, we expect that Soviet upgrading efforts over the next 5 years will emphasize modification/retrofit of deployed aircraft.

I have worries about this kind of projection, although it is logical and we continue to do it. This kind of decline in numbers has been projected pretty consistently by DOD on the grounds that as you get a more capable aircraft, you phase out more than one aircraft for every one you get in. History keeps messing us up on this. The Soviets tend to keep older aircraft in and just add to their numbers as they get new ones, so that we have a history, not only with respect to interceptors but also with tactical aircraft, of being under the number all the time in our projections. Despite my misgivings I cannot beat the logic used by Captain Greene's office in predicting that kind of a decline.

[Deleted.] The air surveillance system presently consists of over [deleted] ground-based radars, located at about [deleted] sites throughout the Soviet Union. The trend over the past 10 years has been for an annual increase in the number of sites [deleted]. [Deleted] a typical Soviet radar site has several radar sets which not only serve distinct functional purposes—such as early warning [deleted] and height-finding—but also provide redundancy in coverage and frequency diversity.

Over the next 5 years, we expect further increases in the number of air surveillance radars deployed. [Deleted.] In addition to the land-based radars, the Soviets have an airborne-warning-and-control system. [Deleted.]

Representative BROWN of Ohio. Can you relate that to our situation in the development of radar?

General GRAHAM. Well, let me take a crack at it this way.

Representative BROWN of Ohio. The AWAC's.

General GRAHAM. [Deleted.] They have it actually deployed and are using it on an aircraft we call the Moss. [Deleted.]

Representative BROWN of Ohio. We do not have anything yet?

General GRAHAM. That is right. They do.

The ABM situation suggests that the Soviets know when to bide their time.

Chairman PROXMIRE. Would you like to show that picture?

[1] See fig. 3, p. 143.

General GRAHAM. Here is a picture of their AWAC. It is not really a picture. That is an artist's concept from pictures.

Chairman PROXMIRE. Please continue.

General GRAHAM. Thank you.

Soviet ABM defenses presently consist of 64 launchers and supporting radars at sites around Moscow.[1] [Deleted.]

[Deleted.] There is still no evidence that the Soviets are expanding defenses at Moscow as permitted under the ABM treaty. They are, however, continuing to [deleted] work [deleted] on new ABM systems. [Deleted.]

Additional launchers utilizing a follow-on system are projected. [Deleted.]

GENERAL PURPOSE FORCES

Significant changes have also been occurring in the U.S.S.R.'s general purpose forces. These changes reflect Moscow's determination to have a broad range of military capabilities to cope with, and take advantage of, the shifting patterns of international events.

The relatively stable situation suggested by this graphic is belied by the qualitative improvements that have characterized Soviet ground forces over the last 10 years.[2] For example, force tailoring is increasingly apparent at division as well as army level, with units west of the Urals often significantly different from those deployed elsewhere. Motorized rifle divisions that might be expected to fight in the NATO area have increased their number of main battle tanks by 30 percent, with a concurrent rise in armored personnel carriers. These motorized rifle divisions are also receiving advanced self-propelled artillery. This expansion of combat and necessary support units has resulted in an increase in divisional personnel strength, from approximately 9,500 per MRD to [deleted]. Expansion in NATO-oriented tank divisions has raised the personnel level from about 8,000 to [deleted] per division. In general, ground forces are increasingly able to furnish their own air defense, particularly at low altitudes. There are now five different surface-to-air missile systems deployed at division and army level in addition to antiaircraft artillery. Our estimate from year to year has always been that force levels would remain broadly the same for the foreseeable future.

Our projections for this period continue to reflect a relatively stable number of major tactical units. Emphasis will probably be on force tailoring, modernization of equipment, and increased flexibility through deployment of regimental- and brigade-size independent units, such as specialized airmobile and amphibious elements. Most developments in weapon systems are expected to be evolutionary. One exception is the replacement of the current family of liquid short-range ballistic missiles and free rocket systems, Frog and Scud, with a new family of solid-propellent short-range missiles. [Deleted.]

A similar situation prevails with naval major surface combatants.[3] The number of such units has increased over the past 10 years. Of much greater significance, however, is the qualitative improvement in the force structure, with the emphasis being placed on missile-equipped

[1] See fig. 4, p. 144.
[2] See fig. 5, p. 145.
[3] See fig. 6, p. 146.

units. We expect the overall force capability to continue to improve over the next 5 years as additional heavily armed units are produced. We project some [deleted] active units in the force in 1980.

The general purpose submarine force, despite its decline in total numbers, has become a more capable force.[1] The decline from some 330 units in 1966 to about [deleted] in the current inventory was the result of the retirement of older diesel units, which had been hastily constructed following World War II.

We project a continuing decline to about [deleted] submarines by 1980 as more of the older units are retired from active service. About [deleted] of the remaining [deleted] submarines will be nuclear powered.

Representative BROWN of Ohio. Is the philosophy here the same, that they may not really take out more submarines?

General GRAHAM. That worries me some, but the Soviets have been pretty good about that. Our predictions of decline in the total submarine force I think have been pretty well borne out.

Captain GREENE. They put them in mothballs so they are available, just as we did after World War II. They are available for reactivation if they are needed.

Representative BROWN of Ohio. Where are they mothballed?

Captain GREENE. [Deleted.]

General GRAHAM. Are any of them [deleted] in the [deleted]?

Captain GREENE. Yes, a few. [Deleted.]

General GRAHAM. The last 10 years saw an expansion and modernization in all elements of Frontal Aviation, the U.S.S.R.'s tactical air arm.[2] In the counterair force, gun-armed, day-only fighters were replaced by a greater number of modern, missile-armed, all-weather fighters. The ground attack force underwent a [deleted] percent increase in size, responding primarily to a perceived threat along the Chinese border. [Deleted.] Additionally, a marked increase in reconnaissance aircraft occurred during this 10-year period. As in the case of bombers, our past predictions of an early drawdown of this force never materialized.

The projections for the next 5 years show a slight reduction in the total number of Frontal Aviation aircraft. The modernization evident in the 1966 to 1975 era is expected to continue in the counterair force, with longer range, more capable fighters replacing older aircraft on a slightly less than one-for-one basis. The principal modernization effort, however, will likely take place in the ground attack force, as [deleted] older aircraft [deleted] are replaced by new aircraft optimized for the ground attack and nuclear-delivery missions.

I might add here that the Soviets are finally coming up with an aircraft that is actually designed for the attack mission. Many of their other attack aircraft have been basically interceptor models fixed up to carry out ground attack missions.

To continue, the biggest drawdown in Frontal Aviation numbers should occur among tactical bombers and the older, subsonic reconnaissance aircraft.

The U.S.S.R.'s fixed-wing transport force in the late 1960's consisted almost entirely of medium and light transports.[3] [Deleted.] By 1975, heavy transports still only numbered about 55.

[1] See fig. 7, p. 147.
[2] See fig. 8, p. 148.
[3] See fig. 9, p. 149.

The steady increase in helicopters through 1975 reflects the introduction of large numbers of medium helicopters, in response to the developing Soviet doctrine for the use of helicopter-borne troops in overcoming obstacles in the path of a ground offensive. During this period, there was also a minor increase in the numbers of both heavy and light helicopters.

We expect fixed-wing transports to remain at a fairly constant level during the next 5 years, although the total lift capacity of the force will increase. A modest reduction in the number of light transports is likely as helicopters are deployed to fill some of their missions [deleted]. A steady increase in heavy transports is also projected for this period, with their number in 1980 estimated to be about [deleted].

The helicopter projection shows a [deleted] rise until [deleted]. Subsequently, there is some drawdown in the number of older, piston-engine medium helicopters, but this is offset by the continuing introduction of light helicopters.

Representative BROWN of Ohio. You did not seem to give any emphasis in your consideration of the Navy surface units to amphibious units.

Have they developed or expanded their amphibious force, or is their attitude that they will supply whatever they have to supply with either helicopter or fixed-range transports?

General GRAHAM. Since the 1960's the Soviets have been working on the improvement of their amphibious forces. They reinstituted a type of force that had been deactivated for many years, the marine infantry. They have also developed and deployed two classes of amphibious landing ships. [Deleted.]

Am I right?

Captain GREENE. They do not seem to be designing a force for amphibious operations against heavily defended areas.

General GRAHAM. That is right. They operate [deleted].

Representative BROWN of Ohio. Did the merchant ship situation lend itself to a conversion, quickly and in volume, to amphibious operations?

General GRAHAM. Oh, yes. As a matter of fact they have some advantages because they have what we call [deleted]. However, as with us, if you are going to attempt an amphibious operation and you cannot get to a port very quickly to use that kind of ship, you are at a considerable disadvantage.

Representative BROWN of Ohio. Thank you.

EFFECTIVENESS OF SOVIET MILITARY ESTABLISHMENT

General GRAHAM. Finally, sir, I come to your question of effectiveness—that is, the actual effectiveness of the Soviet Military Establishment. The outlook here is at least as disconcerting as that prompted by our review of Soviet defense expenditures.

I will address the individual Soviet forces pretty much in the same order that I discussed force levels, beginning with ICBM's.

BALLISTIC MISSILES

When we speak of ballistic missile effectiveness, we are referring to the capability of reentry vehicles to destroy targets. Two primary factors determine this effectiveness—the yield of the nuclear warhead, and

accuracy. If an RV has a high yield and a good accuracy, it can be used effectively against hardened targets—underground bunkers, missile silos, and hardened command posts. On the other hand, if their yield is low, or the accuracy relatively poor, the weapons are useful only for soft targets, such as airfields and urban-industrial areas. ICBM's are shown on the next two slides. [Deleted.] There is little doubt that these missiles have the capability to destroy an unacceptably large portion of U.S. urban-industrial areas, airfields, and soft targets. If, however, multiple targeting, that is using more than one warhead per target, is employed, the new Soviet ICBM's with MIRV's will be more effective against a large hard-target array than would single RV systems.

This portion of the U.S.S.R. ICBM force is roughly comparable in capability with U.S. Minuteman. Minuteman has better accuracy, but the Soviet missiles have higher yields.

Chairman PROXMIRE. Is there any way you can compare accuracy and yield? Is not accuracy likely to be more important?

General GRAHAM. Accuracy is a squaring function whereas yield is a linear function as far as its destructive capabilities against targets.

Chairman PROXMIRE. Accuracy is more important?

General GRAHAM. Yes.

ICBM's with high single-shot, hard-target-kill capability include the SS–9 MOD 2, which comprises most of the present capability, and the SS–18 MOD 1, which is now being deployed. These two missiles have the capability to destroy U.S. missile silos and other hard targets. The Soviets are currently limited by the strategic arms agreement to deployment of about 300 of these weapons. Without MIRV'ing, the U.S.S.R. is denied the capability to destroy a major portion of U.S. hard targets at the present time with these two systems. The United States has no missiles in this high-yield class.

Senator TAFT. Are any of those submarine-launched?

General GRAHAM. No, sir, they are all land-based.

Senator TAFT. Thank you.

General Graham. The Soviets have the flexibility to retarget their ICBM's [deleted].

As the U.S.S.R. completes phase-out of the older SS–7's and 8's, some of which are deployed on soft pads, and has all ICBM's deployed in silos, the survivability of the missile force will be enhanced.

There seems to be little doubt the Soviets are intent on deploying a missile-carrying submarine force which is equally modern to their ICBM force. This submarine force is undergoing modernization with the addition of the Delta class [deleted]. The SS–N–8 missile has a maximum range of 4,200 nautical miles, which allows the submarine to remain in distant areas, such as the Barents Sea, where it can remain beyond Western surveillance systems and still strike the United States.

As a matter of fact, submarines with those missiles could strike the United States even when tied up in their own ports.

Representative BROWN of Ohio. The range of missiles?

General GRAHAM. Yes, sir.

[Deleted.]

Soviet SSBN's have capabilities similar to U.S. ballistic missile submarines, except in the noise level generated by submarine operation; the U.S. submarines being less noisy.

Chairman PROXMIRE. Is there any evidence of a Soviet MIRV'ing of submarine-launched ballistic missiles?

General GRAHAM. [Deleted.]

Captain GREENE. [Deleted.]

General GRAHAM. It is a reasonable guess that they will MIRV submarine-launched ballistic missiles.

Senator TAFT. What is the effective range of this missile against submerged U.S. submarines?

General GRAHAM. It has no capability against a submerged U.S. submarine. It will not be able to pick up the target, sir.

Senator TAFT. If it knew where the target was, what is the distance range?

General GRAHAM. That will still be 4,200 nautical miles.

Senator TAFT. I did not mean that. What range of hit? How many miles away?

General GRAHAM. The SS–N–8 we estimate has a [deleted] CEP.

Captain GREENE. Yes. That missile is designed for use only against geographic coordinates. It would be very difficult for them to use it against a mobile target such as a ship or a submarine.

General GRAHAM. If the Soviets had one of our submarines that they knew about for a long time and could target it, they probably would have enough capability to destroy the submarine.

Representative BROWN of Ohio. Basically land-based targets?

General GRAHAM. Yes, and soft ones. These weapon systems do not seem to be coming up with the capability of hitting hard targets.

Chairman PROXMIRE. You were talking about the likelihood and the virtual certainty that the Soviet Union will MIRV their missiles on their submarines. Do you have any notion how long that will be?

General GRAHAM. I guess we can make some kind of projection.

Captain GREENE. We project about [deleted] years.

Representative BROWN of Ohio. All atomic?

General GRAHAM. Yes, sir. You mean the power of the boats, sir?

Representative BROWN of Ohio. No.

General GRAHAM. The warheads? Yes.

Representative BROWN of Ohio. The power of the ship is atomic, too?

General GRAHAM. Yes.

Senator TAFT. How long has the SS–8 been in development?

General GRAHAM. About 5 years.

Senator TAFT. It does not fit the Yankee class submarine.

General GRAHAM. No; it does not. The dimensions are different. They would have to do quite a bit of alteration to the Yankee to get it in there.

Chairman PROXMIRE. Please proceed.

INTERCONTINENTAL MANNED BOMBERS

General GRAHAM. The Soviets have maintained an intercontinental manned bomber force as an integral part of their strategic offensive force. They have also developed and deployed bombers in the intermediate range, which in past reflects their physical proximity to NATO forces.

Soviet Long Range Aviation, LRA, constitutes a strategic force capable of conducting strikes against targets in North America, Europe, China. The bombers provide a significant part of the Soviet capability for strategic attack because of the advantages they can give in terms of accuracy, targeting flexibility, ability to be recalled or diverted, restrike capability, and poststrike reconnaissance. Additionally, bombers are uniquely suited for other missions, such as providing nonnuclear support to theater forces.

The controversial Backfire bomber is the latest example of the Soviet commitment to a manned bomber force. There is insufficient evidence to determine how the Soviets intend to use Backfire. Its likely capabilities make it suitable for both peripheral and intercontinental missions.

Part of the Soviet bomber force has an antiship mission. The Soviets apparently view the U.S. carrier force as a particularly serious threat to their homeland, and consequently some bombers have the role of reconnaissance and strike against naval surface forces.

We see a growing problem regarding the Soviet bomber force with respect to aging. Although attrition of aircraft due to aging can be overstated, it can be expected to take its toll on the effectiveness of the bomber force unless the Soviets take certain measures in the next several years, such as modernizing or replacing their force.

Air Defense

The massive Soviet radar development virtually assures detection and early warning of aircraft attempting to penetrate the U.S.S.R. through any approach route at medium to high altitudes. Low-altitude coverage, however, is much more limited [deleted]. Although the Soviets are capable of detecting and tracking targets [deleted] bringing weapons to bear on these targets in another matter.

The strategic defense interceptors of APVO have a good capability against aircraft and large air-to-surface missiles, ASM's, such as the U.S. Hound Dog, penetrating at medium to high altitudes in all-weather conditions. Against low-altitude penetrations, however, intercept capabilities are very limited, And, they are nonexistent against high-speed, small radar-cross-section ASM's, such as the U.S. SRAM.

In the past several years Soviet efforts have been directed toward extending the air warning network, attempting to detect and engage the ASM-carriers prior to their reaching the weapons-release line. [Deleted.]

Although a decrease in the size of the interceptor force is projected [deleted], the effectiveness of the force, especially at medium and high altitudes, will continue to be enhanced. Efforts at solving the low-altitude intercept problem will most likely center on developing a look-down/shoot-down capability [deleted].

Representative Brown of Ohio. I found it extraordinary in the picture that they do not have more warning systems between the Soviet Union and China.

General Graham. That picture, sir, or the previous one.

Representative Brown of Ohio. This one and the previous one.

General Graham. They have a fair density along the border there with China. Of course one thing, sir, they have much less of a problem against China as far as their capability to fly against them.

One thing that has been quite noticeable is the Soviet deployment in the last 8 or 9 years of additional capabilities along that line, both with respect to air defense and other kinds of things.

Representative BROWN of Ohio. Thank you.

General GRAHAM. Soviet SAM systems have good capabilities against aircraft at medium to high altitudes but no capabilities against SRAM. Only the SA–3 was specifically designed to counter aircraft penetrating at low altitudes. While this system is deployed in barrier defenses [deleted] and near some important urban and industrial centers, many areas have no such defense. The SA–3 was introduced in the early 1960's and was probably modified to improve its low-altitude performance [deleted]. The extent of its deployment, however, suggests that the Soviets [deleted].

Work at solving the problem of low-altitude and SRAM defense will probably be the dominant task of Soviet air defense planners over the next 5 years, and beyond. [Deleted] it does not appear likely that even if a new strategic SAM is now under development that they could field the system in sufficient numbers by [deleted] to substantially reduce present SAM deficiencies. However, they may utilize the mobile SA–6 in this role in the meantime.

Moscow ABM

The Moscow ABM system would provide little defense in the face of a massive U.S. attack, but it could protect Moscow and a fairly wide area of the western U.S.S.R. against a small attack. Similarly, small unsophisticated attacks against the Moscow area by third countries could probably be defeated. Assuming optimum conditions for the defense, the system could successfully engage no more than [deleted]. The addition of the 36 interceptors allowed in the ABM treaty would, under similar circumstances, allow engagement of no more than [deleted].

GROUND FORCES

The Soviets have upgraded mobility capabilities of their ground forces to the point where they can now field divisions in which infantry, artillery, engineers, and command facilities are all mounted in vehicles for highly mobile, blitz-krieg-style warfare. The BMP's armored personnel carrier—small, highly mobile, and powerfully armed—is probably the best infantry combat vehicle in the world today. Antiaircraft defense for forward elements of the force includes both self-propelled guns and several different mobile tactical surface-to-air missile systems for overlapping and redundant capabilities in battlefield air defense. This considerably reduces the ground force dependence on interceptor aircraft support.

Currently deployed Soviet surface-to-surface missiles and free rockets have significant deficiencies in accuracy and rely on redundancy for effectiveness. However, several new systems, now in development, are believed to offer both improved accuracy and longer ranges. This will significantly raise capabilities for delivery of high-explosive, chemical, and nuclear warheads, for a greater flexibility in tactical response.

The Soviet Union continues to place a high emphasis on the ability to operate in a toxic environment. All new armored and self-pro-

pelled systems have crew protection for chemical operations, giving the Soviets a significant world lead in this regard.

While most of the current Soviet systems are impressive and some are superior to their Western counterparts, it is not the individual systems which are as impressive as much as the effect of all the systems in concert. The value of such a force is considerably greater that the sum of its parts. Once the force is constructed, however, it is the quality of the troops who man it that will constitute its actual combat effectiveness. The Soviet soldier is physically hard, patriotic, and heavily indoctrinated, and far more mechanically apt than his World War II counterpart. By our standards, however, there are shortcomings in Soviet Army training which produce a lower level of effectiveness in some areas than would be expected from only assessing the total number of human and mechanical resources. In sum, we consider the Soviet Army an effective force and an increasing threat to NATO.

Soviet Navy Surface Fleet

The main strength of the Soviet Navy's surface fleet lies in its flexibility, which is provided by a large number of relatively new, well-armed, high-speed ships having good communications and electronic warfare capabilities and equipped with missile systems with longer ranges than conventional guns on ships. Ships now under construction are among the most heavily armed in the world.

The Soviet ships have been designed for short intense engagements, rather than for staying power. Their offensive armaments—antiship missiles in particular—provide them with the capability for the initial exchange. The Soviets have equipped many of their new surface ships with electro-optical sensors which further enhance their capability. Chemical-biological-radiological protective measures give the Soviets the capability to operate their ships in toxic environments.

The Soviets have advanced communications systems for worldwide centralized control of naval forces as they have recently demonstrated in their global naval exercise. Development work includes utilization of aircraft and spaceborne assistance for coordinated reconnaissance purposes. Local command and control of groups of ships within fleet areas is effective, but it is probable that [deleted].

General Purpose Submarines

The Soviets have a large general purpose submarine force and are increasing the ratio of nuclear-powered to diesel-powered units. These submarines, some of which have a nuclear capability, have excellent communications and modern weaponry. Most Soviet submarines can submerge to [deleted]. Underwater speeds of the newer nuclear-powered classes are [deleted].

The Soviet general purpose submarine force, however, has a number of weaknesses:

The older, diesel-powered units are rapidly becoming obsolescent; the Soviet Navy has remained behind the West in [deleted]; the sonar capabilities of even the newer Soviet classes are believed to be [deleted]; the growing number of modern and sophisticated units is believed to be [deleted]. These shortcomings may be [deleted] of the force.

Representative BROWN of Ohio. What do they give up for the [deleted]?

General GRAHAM. I do not know if they give up anything.

Captain GREENE. They give up [deleted]. Things like this they have put into [deleted]. [Deleted] is one of the features that they have had to give up, which we think is most serious.

Representative BROWN of Ohio. To get [deleted]?

Captain GREENE. Yes, sir. You are volume limited when you build a submarine. If you want to [deleted] then you must have less space inside and you cannot devote space to [deleted] as we do in our submarines. There are two different philosophies in operating a submarine. The U.S. had opted for [deleted]. The U.S.S.R. has opted for [deleted].

Representative BROWN of Ohio. What is the tradeoff in [deleted] and [deleted] in terms of the response of the offensive side in that relationship?

You say they are [deleted].

Captain GREENE. That is right. They have simply opted to have capability to [deleted].

Representative BROWN of Ohio. As a defense mechanism?

Captain GREENE. Yes, sir, as well as [deleted]. We feel that we have greater capability by [deleted] gives you two payoffs. One, [deleted]. And two, [deleted]. Therefore, we get a double payoff by [deleted].

Representative BROWN of Ohio. Does the [deleted] factor—let us say once you engage, does the [deleted] factor of the Soviet submarine make it less likely to be successfully targeted on, or is our situation——

Captain GREENE. No. When he uses the [deleted] and we can [deleted].

Representative BROWN of Ohio. Our [deleted] gives us the opportunity to [deleted] because of an engagement situation.

Captain GREENE. Yes; we think the [deleted] gives us an advantage over them; yes, sir.

Representative BROWN of Ohio. Thank you.

FRONTAL AVIATION

General GRAHAM. Frontal Aviation has been developed into a force capable of operating in a variety of weather conditions, at greater ranges, and with larger payloads.

I may say here that when I first started looking at Soviet tactical aviation, it really was pretty sorry in terms of all-weather capabilities as well as range and load capabilities. As an Army man, I would not have wanted them to support me in army operations.

The counterair force is completely equipped with all-weather fighters, but they are generally limited to rear-hemisphere attacks against most aircraft targets. Improvements will likely derive from research programs toward an effective look-down/shoot-down, all-aspect intercept capability.

Expansion of Frontal Aviation's ground attack capability appears to be one of the highest Soviet priorities. The current capability is restricted by limited fuel and weapon loads but is being upgraded through the development of a new series of aircraft for use in the ground-attack and deep-interdiction roles.

This expanding capability is supported by [deleted] tactical air-to-surface missiles [deleted]. Additionally, the emphasis on conventional operations should result in an upgrading of conventional munitions, particularly in regard to precision, guidance, fuzing, and delivery characteristics.

Frontal Aviation reconnaissance capabilities have improved significantly in recent years, and future development will undoubtedly be influenced and enhanced by the information gathered from U.S. reconnaissance aircraft lost during the Vietnam War.

Electronic warfare represents the most advanced capability in Frontal Aviation. A continued expansion of this capability is expected, with particular emphasis on the use of electronic countermeasures as a penetration aid against a wider range of radar emitters.

Airlift

Although the Soviets have conducted successful airlifts to the Middle East and into Eastern Europe, their ability to conduct such operations or move bulky equipment at distances greater than [deleted] is limited by the small number of heavy transports. Moreover, even their largest transport shown here can carry only two-thirds as much as the C–5 type aircraft. In addition, the lack of a pressurized cargo compartment on [deleted] their primary medium transport, limits that aircraft's usefulness in long-distance troop airlifts. A further limitation to the effectiveness of the airlift forces is their lack of experience in large-scale operations in areas where they have not previously deployed, such as over the Pacific and Atlantic Oceans.

Chairman Proxmire. Is there not also a tremendous difference in the availability in case of an emergency, at least, of our colossal commercial air fleet compared to theirs?

General Graham. There is a great disparity between our commercial air fleet and their Aeroflot.

Chairman Proxmire. Passenger and transport. Do we not have a far greater capacity?

General Graham. Yes, a far greater capacity and much better, from a military point of view. However, one of the things about Aeroflot that is interesting—their pilots are majors and captains. They are quite well militarized right off the bat.

Representative Brown of Ohio. And not paid $100,000 a year.

General Graham. Yes, and not paid a fancy wage.

Representative Brown of Ohio. On the Cock aircraft were those prop-jets?

General Graham. Turboprops. An interesting sidelight on this—when the Soviets flew down to Peru at the time of the earthquake to try to help out, we found out that they were using road maps to find their way down the coast. [Deleted].

The Soviet airlift potential will begin to increase by [deleted] as greater numbers of Candid heavy transports enter the inventory. [Deleted]. Any major improvement in airlift, however, will not be evident until at least [deleted].

Soviet helicopters are well suited for airlifting supplies, equipment, and troops into combat. Moreover, the Soviets possess heavy-lift helicopters which have no Western equivalent.

The Soviets are continuing to develop a doctrine of helicopter assault against local obstacles or opposition which is suited to their high-rate-of-advance strategy for the ground forces. There are [deleted] two helicopters suitable for such operations [deleted].

Although the number of helicopters will increase during the period, the low ratio of helicopters to ground forces will continue as the primary limitation to their effectiveness, restricting their use to high-priority missions.

Mr. Chairman, I realize that my discussion of the effectiveness of Soviet military forces has not included the comparisons with U.S. forces that you requested in your letter. Such comparisons, however, are not properly the function of Defense Intelligence analysts. These comparative assessments are traditionally made within the annual posture statements of the Secretary of Defense and the Chairman, Joint Chiefs of Staff, to which we contribute the threat portion.

Sir, that concludes my presentation.

Chairman PROXMIRE. General, there was nothing in your statement about Chinese defense.

General GRAHAM. We can give you that for the record.

[The following information was subsequently supplied for the record:]

MILITARY CAPABILITIES OF THE PEOPLE'S REPUBLIC OF CHINA

PART I: FORCE LEVELS

Ballistic Missiles

We currently estimate that the Chinese have [deleted] operational CSS-1 MRBM's and [deleted] operational CSS-2 IRBM's. Additionally there could be up to [deleted] SRBM's of the obsolete Soviet SS-2 type deployed, but there is little evidence to support this. A limited range ICBM, the CSS-X-3, could become operational at one silo this year.

[Deleted.]

China's ballistic missile programs are not progressing as fast as previously forecast. This seems to be a result of both economic constraints and technical difficulties. It now appears that programs which would yield quick but limited results are being slowed, and that China is spending her limited resources on research and development of systems that could significantly improve her strategic capabilities in the next decade.

As previously mentioned, we expect a limited-range ICBM (CSS-X-3) to become operational this year. This missile will provide coverage of the Marianas, Australia, and nearly all the U.S.S.R., but not the North American Continent. We estimate that by 1980, the PRC will have deployed about [deleted] of these missiles.

The Chinese have been testing a full-range, CONUS-capable ICBM (CSS-X-4), [deleted]. We also estimate that by [deleted], the Chinese could have deployed one operational ballistic missile submarine (SSBN), which may be armed with up to [deleted] missiles.

Strategic Bomber Force

Since 1966 the Chinese strategic bomber force has evolved from a miniscule force composed of 13 TU-4/Bull (a Soviet copy of the US B-29A) and 2 TU-16/Badger, to a small force of some 60 indigeneously produced Badger and 12 Bull's. In addition, since 1974 a small, but growing, number of IL-28/Beagle tactical bombers [deleted] have been assumed to be available as strategic weapon carriers, reflecting our belief that the Chinese will configure a growing number of these aircraft for a nuclear delivery mission. There is no evidence during this period of attempts by China to seek a strategic bomber capability comparable to that of the United States or U.S.S.R.

The force projected for this period reflects a probable reassessment by the PRC of the role of the strategic bomber force, as evidenced by the suspension of TU-16/

Badger production in 1973. Within the total force of [deleted] aircraft in 1980, some [deleted] will likely be Badger bombers, while an additional [deleted] Badger variants (ECM-configured systems, reconnaissance platforms, and possibly tankers and ASM-carriers) might be produced during this period. The bomber force would still essentially be regional in nature, capable of only short-range attacks across the Soviet borders in defended areas. In addition, by 1980, some [deleted] Beagle tactical bombers are projected to be available for strategic nuclear missions, providing the Chinese with more, though less capable, nuclear carriers with a lower resource allocation.

Interceptor Force

During this period the interceptor force has been the area of major resource investment in air assets by the PRC, bearing a direct relationship to the threat from the Soviets as perceived by the Chinese. Production of the MIG–19/Farmer continues to be the principal active aircraft program in China. This is due partly to the fact that Chinese improvements to the basic MIG–19 design make current models superior to earlier versions. Also, the PRC apparently has encountered problems with the only superior aircraft that has been available, the MIG–21/Fishbed, production of which was suspended in 1971.

The current interceptor force is composed of some [deleted] MIG–15/Fagot and MIG–17/Fresco, [deleted] MIG–19's, and only [deleted] MIG–21's.

Although the projected force structure does not reflect any marked increase in total numbers through 1980, the force is expected to improve qualitatively in both aircraft and weaponry. The phase-out of the older MIG–15 and MIG–17 will be offset by the continued deployment of the Chinese-produced MIG–19, and the introduction of a projected new PRC interceptor during the [deleted] time frame. By 1980, the force is expected to be composed of some [deleted] MIG–15/MIG–17, [deleted] MIG–19, and [deleted] of the new PRC interceptor.

SAM's

China has only one SAM system [deleted] the CSA–1, (basically a copy of the Soviet SA–2 system) with current totals of some [deleted] launchers at [deleted] operational sites concentrated around Peking, a few other key urban-industrial areas, and weapons development centers. Force levels which grew slowly through the late 1960's and early 1970's essentially peaked in [deleted] with about [deleted] launchers at some [deleted] sites. The drop in mid-year launcher levels in [deleted] reflects actual withdrawal from the field of some battalions. This development may have been related to training or equipment modification. Over the past six months or so, several new sites have become operational, and launcher levels are again on the upswing. For the next several years we project further increases in launcher totals as we expect China to extend CSA–1 defenses to protect some important areas not now defended by SAM's. We believe China will eventually develop a low-altitude SAM system, but initial deployment of such a system would not be expected before about [deleted].

AAA

China is very much concerned with potential air attacks is evident from the substantial and growing numbers of AAA weapons deployed for air defense. Current force levels include an estimated [deleted] guns ranging in caliber from 37mm to 100mm, plus large quantities [deleted] of 12.7mm and 14.5mm heavy machine guns. The growth over recent years reflects in part of a greater basic allocation of guns in units, increasing, for example, in some cases from a previous four, to six or eight guns at present. We project continued growth in Chinese-AAA forces over the next few years and then a leveling off with relatively stable numbers by about [deleted].

Air Surveillance and Control Radar Forces

The Chinese air surveillance network presently consists of nearly [deleted] ground-based radars deployed at some [deleted] sites throughout the country. Figures for the past several years show steady growth in total radars and in new sites as well. The increase in sites at an annual rate of some [deleted] over recent years suggests that China is still in the process of establishing its basic radar network. Thus, for the future we project a [deleted] increase in both radars and radar sites. Over the years, however, we expect the emphasis will become directed more toward upgrading the individual sites by the addition of radars with improved capabilities, and in greater numbers, at the sites.

Ground Forces

The number of infantry/border defense/internal garrison divisions stands at 77, and there are some 8 to 9 armored divisions. Most of the increases during the period are believed to have occurred between 1969 and 1972. Our graphic shows later increases; however, these units were probably in being prior to the time they were accepted in the order of battle. [Deleted]. The Chinese [deleted] have been modernizing the divisions currently deployed, and increasing the number of service support units.

Our Best Estimate projects a continuation of the emphasis on qualitative improvements and forecasts [deleted] increase in the number of main force divisions. Evidence of Chinese intentions regarding mechanization is limited, but they have devoted considerable resources to armored personnel carrier production facilities. Therefore, we would expect to see at least a partial mechanization of a few of the standard infantry divisions by 1980.

Major Surface Combatants

The PRC Navy's major surface combatants have increased over the past decade and currently number about [deleted] units. The majority of them are equipped with a surface-to-surface missile system, designated the CSS–N–1, which is estimated to be similar to the Soviet Styx. In the future, we expect more emphasis to be placed on destroyer escort-size units than on the larger destroyer classes. A total of [deleted] major combatants are projected by 1980.

General Purpose Submarines

The PRC general purpose submarine force currently and over the next decade, will consist primarily of diesel-powered units. Test and evaluation of nuclear propulsion are expected to be slow. [Deleted.] The majority of the force is comprised to Romeo and Whiskey Class units.

We estimate that the force will continue to increase in numbers from about [deleted] units in the current inventory to about [deleted] by 1980. A few additional nuclear powered units may be produced but series production of SSN's is unlikely until [deleted].

Tactical Air Forces

The PRC tactical air forces [deleted] in size during the period 1966–75. In 1966, the force was composed almost exclusively of tactical bombers, whereas today the MIG–15/Fagot and F–9/Fantan fighter-bombers constitute more than half the force. The general trend during these years, both in numbers of aircraft and in training patterns, points to an increasing Chinese concern for improving attack capabilities. The large increase shown between 1967 and 1968 is due to the crediting, by U.S. analysts, of some [deleted] MIG–15's to the tactical air forces. [Deleted.] It is likely [deleted] that the MIG–15's had been gradually transferred to the tactical force as greater numbers of MIG–19/Farmer's were deployed in the interceptor force.

The projected force shows a continuation, [deleted] of the PRC's emphasis on surface attack capabilities, with some continued production and deployment of the Fantan ground attack fighter expected through [deleted]. Production of a follow-on, native-designed aircraft is not expected until [deleted]. By 1980, the bulk of the force will be composed of [deleted] Fantan's; in addition, some [deleted] MIG–15's, along with some [deleted] IL–28/Beagle tactical bombers, will still be in the force. Some of these latter are expected to have a nuclear-delivery role in support of the strategic bomber force, but will likely continue to be subordinated to tactical air units.

Military Transport Aviation

The PRC military air transport force is composed of a mixture of aircraft produced in the Soviet Union, Great Britain, the United States, France and China. About 95 percent are older, short-range propeller-driven aircraft. A similar percentage of the helicopter force consists of the older, Soviet-designed MI–4/Hound, designated Whirlwind by the Chinese.

The current force consists of some [deleted] medium and [deleted] light transports, along with [deleted] heavy and [deleted] medium helicopters. In addition, some 140 multi-engine civil transports assigned to the Civil Aviation Administration of China (CAAC) are also readily available for military or national emergency uses.

With the exception of the Whirlwind helicopter, the PRC is currently not producing any transport aircraft, and resorts to foreign purchases for needed additions to its inventory.

In general, the projection reflects a continuation of the relatively low priority, through 1980, for acquisition of military transports. In addition, indigenous production of transport aircraft is not expected during this period. Similiarly, indigenous helicopter production and/or acquisitions from foreign sources are also projected to have a relatively low priority during the next five years.

The PRC, however, is likely to continue purchasing some foreign-produced transports and helicopters through [deleted]. These acquisitions may be additional numbers of aircraft types already in the inventory or may be aircraft totally new to the Chinese. By 1980, the number of medium transports is expected to reach [deleted] while light transports will likely number some [deleted]. The helicopter force is projected to increase [deleted] through 1980. In that year, heavy helicopters are projected to number [deleted] while there will likely be some [deleted] medium helicopters.

PART II: FORCE EFFECTIVENESS

Strategic Forces

The PRC has a relatively small, but carefully conceived, strategic program. A modest and credible capability has been achieved for nuclear strikes by missiles and bombers around the periphery of the PRC to distances of some 1,600 nm. The Chinese also have on-going programs for development of ICBM's and SLBM's.

When the Chinese limited range ICBM system reaches IOC, perhaps this year, the PRC will have a limited capability to cover targets in the European U.S.S.R.—possibly including Moscow. The Chinese are also developing a large ICBM in the same class as the U.S. Titan and the Soviet SS–9 with a possible range of 7,000 nm. This missile would be capable of reaching targets in the U.S. and in all of the Soviet Union. We continue to have difficulty in forecasting the rate of progress of the PRC SLBM program, but we remain convinced that the PRC is determined to develop such a system. This first-generation Chinese SLBM system is expected to be comparable in size to the early U.S. Polaris missiles.

The PRC bomber force includes the intermediate-range TU–16 and short-range IL–28 bombers. The PRC may plan to equip some of these aircraft for a nuclear attack role. Staging from airfields closest to the Sino-Soviet border would permit strategic operations against substantial portions of the contiguous Soviet Union, all of South Korea, parts of Vietnam, and some of India. These bombers also might be used in a theater role within the PRC.

The PRC's air defense system remains subject to major weaknesses, including a severe shortage of all-weather interceptors, a limited number of SAM sites, and an outmoded air defense operating system. As a consequence, the PRC relies heavily on passive defense measures such as dispersal of industrial facilities. Overall the PRC defenses are capable of providing security against limited attacks by neighbors but would be ineffective against a full-scale Soviet or U.S. air attack.

General Purpose Forces

Ground Forces.—Totaling over 3,000,000 personnel, the PRC ground forces are the largest in the world. The PRC, however, has only limited capability for deploying its forces to any extended distance beyond its borders. Modernization of equipment, logistics support, and command and control upgrading are activities currently underway in the PRC army.

Armored Forces.—The PRC has about as many main battle tanks as the United States. However, their inventory of armored personnel carriers is much smaller. This fact is in keeping with their ground force structure, known tactical doctrine, and their perceptions of ground force employment.

Troops.—The PRC army soldiers are judged to be well trained, politically indoctrinated, and highly motivated, though they lack the technical competence of the U.S. forces.

Naval Forces.—The PRC inventory of major surface combat ships, although small, is growing slowly. The current force is a mixture of Soviet-designed destroyers and destroyer escorts over 20 years old and a number of Chinese-designed, missile-equipped ships built during the past 10 years. More surface combatants of Chinese design are being constructed.

The first Chinese-designed Lutt-class destroyer, displacing 3,700 tons and equipped with missiles, joined the PRC fleet in 1971. Luta carries six Styx-type missiles, antisubmarine weapons, and antiaircraft guns. This is the largest class combatant in the PRC fleet. Currently, the Chinese have six Luta-class DDG's; another is under construction.

We expect slow growth of major surface combatants to continue. Thus, by mid-1980, the PRC is expected to have only a relatively small number of major combat surface ships. The new Kiangtung-class destroyer escort program continues.

As the PRC acquires new open-ocean capabilities, it also is expanding rapidly its guided missile boat force. These fast boats are armed with the Chinese version of the highly effective Soviet-designed Styx surface-to-surface cruise missile. The burgeoning missile boat force significantly enhances the posture of vital coastal areas and increases the mobility of main surface force units.

Submarine Forces.—The PRC submarine force, except for a single Han-class submarine, continues to operate the Soviet-designed and Chinese-built Whiskey- and Romeo-classes of medium-range units. These submarines, well designed and compatible with the PRC's coastal shelf defensive role, constitute the main body of the PRC forces. In the next several years, we expect the PRC to acquire a substantial number of attack submarines, some of which may be nuclear-powered. The remainder of the PRC submarine force will be distinctly inferior to the long-range nuclear-powered attack submarines operated by both the U.S.S.R. and the United States.

Tactical Air Forces.—In the PRC, most fighter aircraft (over 3,000 in 1975) are assigned a strategic home defense mission. The PRC figures, therefore, include only the tactical aircraft (attack fighters and tactical bombers) in the active inventory of the air force and naval air force. On the other hand, home defense interceptor units participate in ground support training exercises. It is believed that as many of these strategic home defense aircraft as required would be utilized, whenever necessary, in a tactical role. No reserve aircraft figures are available for the PRC.

Tactical Nuclear Weapons Force.—PRC nuclear weapons delivery systems which are available for strategic use—IL–28 jet bombers and F–9 fighters, could also be used in a tactical (theater support) role in coordination with ground operations.

Chairman PROXMIRE. I would like to ask if you could make available to us, the committee, between 1961 and 1971, the estimates that have been made by the DIA and by the CIA, too—I guess it is just the DIA—of selected aspects of Soviet spending and capabilities so that we can compare over time with other estimates what actually happened.

We would like you to do that from 1961 to 1971, so that we would not get into the most recent estimates. We want to do an objective analysis of the estimates and actuality so we can determine something about your performance and about how much we know about Soviet defense allocations.

General GRAHAM. I will not be able to do that, sir, because the Defense Intelligence Agency made no independent estimates of cost. We simply used the CIA figures, so there is nothing to compare.

Chairman PROXMIRE. Were estimates made? I understood you to say that they were made by other defense services?

General GRAHAM. No, sir. I referred to one estimate made by a man on his own outside of the defense arrangement. He was working for Stanford Research Institute at the time and made an estimate. It was not a defense estimate.

Chairman PROXMIRE. Do you not give estimates to the Secretary? Are there not some estimates other than CIA estimates that he had before 1965? You said DIA made its estimates. When did the DIA estimates begin?

General GRAHAM. They began in 1963, sir.

Chairman PROXMIRE. Can you give us since 1963? How far back do your estimates go?

General GRAHAM. To 1963. We have no estimates on Soviet costing except that those that we did with CIA. So the estimates are exactly the same, ours and CIA's. The CIA had the ball on this.

Chairman PROXMIRE. If you do not have them on your spending, is that what you say?

General GRAHAM. The Soviet military budget figures.

Chairman PROXMIRE. Capabilities?

General GRAHAM. Capabilities. We can give you any difference of opinion we had. They are all reflected in national intelligence estimates. Where we disagreed, we took a dissent. The record is clear where we dissented from CIA on capabilities.

Chairman PROXMIRE. If you would give us those. Give us what you can.

General GRAHAM. On capabilities, we can do that.

[The following information was subsequently supplied for the record:]

DIA–CIA DIFFERENCES: 1963–71

During the period 1963–1971, the Defense Intelligence Agency expressed differences of opinion with the position taken by the Central Intelligence Agency by footnoting several estimates.

In the strategic force estimates, the primary differences related to the weight of an ICBM nosecone and in the range and accuracy of another ICBM. Additional comments were made concerning the total number of launchers that were estimated to be deployed in future years.

In the strategic defense forces estimates, the primary differences related to the capabilities and deployment of a defensive missile system and whether such a system would be used as defense against ballistic missiles as well as aircraft.

TET OFFENSIVE

Chairman PROXMIRE. It is my understanding that estimates were made, I believe, by the Defense Intelligence Agency of the North Vietnam strength at the time of the Tet offensive.

Is that right?

General GRAHAM. By DIA? Yes, sir, I believe they did.

Chairman PROXMIRE. At that time they estimated that the North Vietnamese defense had been weakened. The North Vietnamese military forces had been weakened, that they were less than they actually turned out to be.

Is that correct?

General GRAHAM. My recollection is that, at the time of the Tet offensive, DIA and CIA had just recently agreed on an estimate of about 275,000 to 300,000. You are talking about the total VC–NVA force, are you not? Total VC–NVA force; yes.

Yes; I believe they did. At the time, I was not here. I was in Vietnam.

Chairman PROXMIRE. I understand that a different conclusion was reached by one outside observer. At that time he was a CIA analyst, I should say, named Sam Adams.

General GRAHAM. Yes. I know Sam well.

Chairman PROXMIRE. His job, I understand it, was to estimate the enemy strength in Vietnam. He said the problem was that the CIA, the military in Vietnam and DIA repeatedly underestimated the size

of the enemy forces. He said the official estimate was 270,000. Actually, it turned out to be 600,000 after the evidence was examined in later years with hindsight.

Is that approximately correct?

General GRAHAM. Sam Adams was dead wrong from the beginning and is dead wrong to date. Sam Adams looked at a bunch of VC documents, including some that went back to 1966. He had arrived at the conclusion that there were 600,000 troops instead of the 275,000 estimated at that time.

Shortly after he brought this up, his CIA chieftains brought him out to Saigon and this thing was argued back and forth. The Saigon estimate was raised somewhat because of his arguments, but for the most part they did not buy his assessment. The figure was raised slightly, to about 300,000.

Shortly thereafter, we had the Tet offensive. The highest estimate I have ever seen on the number of enemy forces committed to the Tet offensive was 85,000, and we knew that the Communists scraped the bottom because they were committing troops that they brought out of the hospitals with unhealed wounds—very good evidence that people were just being scooped up out of villages and handed weapons that they did not even know how to use and then were committed.

Even if one were to suspect that the 85,000 was only half as big as the number committed and that the number was actually around 160,000, the MACV estimate was too high at 275,000.

Chairman PROXMIRE. Something happened. That Tet offensive was a disaster for us. It had enormous effect. We had all kinds of American casualties. It seems it was a surprise for the President of the United States, President Johnson at that time.

Do you still believe that the Tet offensive was launched by a weak North Vietnamese military force?

General GRAHAM. It was launched by everything they had. It did not turn out to be that weak. A force of 85,000 is still a pretty strong force, but the Communists miscalculated seriously on the proposition that they would get a big uprising in the cities and everybody would come out and help. It did not come about. Although it was a massive psychological problem for our side, as far as casualties are concerned, the enemy lost at least 20,000 dead in that attempt, probably closer to 30,000. Further evidence that Mr. Adams was wrong is the replacement pattern noted with respect to enemy dead. There is very firm evidence that the replacements for those casualties were sent down from North Vietnam. If the Communists had had 600,000 troops in South Vietnam, they sure as the devil would not have had to bring down replacements from North Vietnam.

Further, you know, the whole Vietnam had just been lost to less than 300,000 troops. Mr. Adams' basic contention is that somehow everybody was wrong except Mr. Adams. I do not buy that.

Chairman PROXMIRE. I think his contention was that later analysis of these documents and so forth indicate that they may have greater strength. You may very well be right.

SOVIET DEFENSE COST TRENDS

I understand, as I recall Mr. Colby testified before this committee, that the dollar cost estimates of Soviet defense programs in the past

10 years show a steady rise of an average of about 3 percent in real terms, real dollar estimates.

Do you agree with that appraisal? Is that about right?

General GRAHAM. If you remember, sir, I do not believe the dollar figures at all when they show up in a total aggregation for the Soviet budget.

Chairman PROXMIRE. Your contention is that converting rubles to dollars is so complicated, such differences between our economy and theirs, that it becomes meaningless.

Is that it?

General GRAHAM. Yes, sir. Let me give you some examples.

For instance, the Soviet pay for a soldier is very low, but the impact on the U.S.S.R.'s labor-intensive economy of having 4.5 to 5 million men under arms is a greater economic cost to them, or can be figured as a greater economic cost to them, than it would be for us, because our economy is not that labor-intensive.

It just does not make sense to me to try to cross these ruble-dollar-ratio bridges. What you are trying to do is measure the efficiency of our system against theirs, and when you have the whole military force, there are so many different things you are trying to measure efficiency against, it just does not make sense. The room for error is so great, I just do not buy the dollar figures.

Chairman PROXMIRE. Do you think that there was an average increase in rubles?

General GRAHAM. Oh, yes, if you are talking rubles.

Chairman PROXMIRE. What was that increase over the past 10 years per year, roughly? Or give it to me for the 10-year period and then divide by 10.

General GRAHAM. For the 10-year period I would say that the ruble increase approximated the increase in GNP. I do not arrive at that conclusion from any complex economic analysis. I am not an economist.

Chairman PROXMIRE. Approximated the Russian increase in GNP.

General GRAHAM. That is right.

Chairman PROXMIRE. Then it would be about 4, 5, or 6 percent, something like that in that area.

General GRAHAM. That is right.

Chairman PROXMIRE. I understood you to indicate that there was a shift in the proportion of GNP that the Soviet Union was putting into the military, or was this a shift in estimate? [Deleted.]

General GRAHAM. I said that [deleted].

Chairman PROXMIRE. The estimates had been wrong?

General GRAHAM. Yes, sir.

Chairman PROXMIRE. They have been consistently spending at 15 percent?

General GRAHAM. Yes, sir.

Chairman PROXMIRE. I will be back.

Congressman Brown of Ohio.

MILITARY MANPOWER

Representative BROWN of Ohio. I would like to go back to this point about the low-paid Soviet worker compared to a low-paid Soviet

Army sergeant, or whatever, and the relationship between American worker pay versus what one would get if he were in the Army or military in the United States.

Can you relate that in some way?

General GRAHAM. I can put it in another way, sir.

Representative BROWN of Ohio. I am thinking in terms of my $100,000-a-year airplane pilot and the pilot over there flying planes.

General GRAHAM. There is no unemployment in the Soviet Union. The U.S.S.R. is short of labor. The Soviets need everybody they have got. They are short of work force in many sectors of their economy.

I am saying that the impact on the total economy of taking 4.5 to 5 million men out and putting them in uniform cannot be measured in terms of dollars—that is if you are trying to compare what it costs to take men out, even at the higher pay, and put them into the military.

It just has a different impact than when you try to put a dollar yardstick on it. You are lost, in my view. Mind you, I am not the majority voice, even within the Department of Defense in this matter. That is the way I personally look at it. I think I know enough about the Soviet Union to say you cannot go that dollar route and come up with anything that makes sense.

Representative BROWN of Ohio. What about the technological training of the Soviet military personnel versus the Soviet labor? Is the Soviet military man a more sophisticated, trained in a more sophisticated way in the technological aspects of whatever it is he does?

General GRAHAM. A large number of personnel leave the Soviet forces with a much higher technological capability than when they went in. Some of them do not.

Chairman PROXMIRE. That is true in our military force, too.

General GRAHAM. Yes; but the Soviets look at their army as a base for political and technical training. This was the indirect cause of the 1967 reduction in troop strength. The Soviets lowered the draft term from 2 to 3 years right at the time they were getting much more technical as far as the forces were concerned. The forces were getting fancier and fancier equipment. Yet, they lowered the term, which to the military mind does not make any sense because that third year of a trained man's tour of duty is extremely valuable. Why did they do this?

They did it because they had gotten over the baby slump that they had during World War II. They had a great many young people coming up for draft, and too many of them were escaping. So the Soviets lowered the draft term to make sure that they never got any less than 70 to 80 percent of the personnel available for draft into the army and navy.

The Soviets look at their military forces as part of the total end product of society. They do not look at it as a social overhead, as we do. So you see, this kind of consideration enters into Soviet decision-making at all times.

This is another indication that if you try to measure their efforts in dollars as compared with our dollars, it does not make sense. [Deleted.]

Representative BROWN of Ohio. I guess what I am really asking is whether the Soviets use their military as a technological training ground and assumes that that is an economic and social benefit if it is political indoctrination also to the operation of the civilian society.

General GRAHAM. Yes, sir.

Representative BROWN of Ohio. You understand what I am saying?

General GRAHAM. I understand what you mean. They marshal a large number of people to do a great many things.

For instance, you will find that if they are having trouble with their harvest, they will turn out all the military forces in the area to help out with the harvest. I believe part of the buildup along the Chinese border is a matter of forced migration. The Soviets have never been able to get people to go out along that border and stay there. The settlers keep drifting back into western Russia. They do not like it out there.

One of the ways to increase the total Soviet population along the Sino-Soviet border is to draft more soldiers and send them out there.

Representative BROWN of Ohio. You have the camp followers, too.

Chairman PROXMIRE. Senator Taft.

SOVIET MISSILE ANTISHIP CAPACITY

Senator TAFT. I would like to know a little bit more about the Soviet missile antiship capacity as far as our carriers are concerned. We did not talk at all about the [deleted] missiles. I am thinking particularly about the [deleted].

General GRAHAM. Yes, sir. This is a worry to us. As you put lids on the total number of strategic systems and [deleted], which then creates a bigger threat to surface ships.

I would ask my associate——

Captain GREENE. Yes, sir. We have to consider the [deleted]. To date we have never been able to clearly associate [deleted]. We simply have not seen it. It appears to be the most logical development but simply has not occurred to date.

If it does occur, it provides a very, very serious threat to the U.S. Navy, particularly if used in conjunction with [deleted].

Senator TAFT. How accurate are they?

Captain GREENE. They are somewhat like [deleted].

Senator TAFT. It is basically [deleted].

Captain GREENE. It is a [deleted].

Senator TAFT. Are we going to have a defense capability in regard to such a missile?

Captain GREENE. We hope so. [Deleted.] However, the Navy should be asked to discuss that.

Senator TAFT. Thank you very much.

SOVIET NAVY MISSION

Representative BROWN of Ohio. May I pursue one point there, if you would yield?

If I understand the Navy, their strategic application of the Navy, it is not for amphibious warfare. It is not at this point, at least, primarily designed for naval warfare, one naval ship against another, although obviously that is part of the system within a ship.

Rather, as a presence and as a continental kind of attack mechanism against fixed targets. Is that correct?

Captain GREENE. Yes, sir, with one exception. The Soviets have the interdiction role also. We have to obtain and maintain control of the

sea. Their mission is different. They simply have to interdict our lines of communication. They do that with their general purpose submarine force. Their surface fleet is essentially exactly what you recounted; yes, sir.

General GRAHAM. We have to keep sea lanes open. However, they are not dependent on them.

Representative BROWN of Ohio. That infers that their navy is primarily for defense purposes rather than offensive purposes except in response to an attack.

Can I extrapolate that far?

General GRAHAM. I think you would have to say that it is no more defensive than the German U-boats were.

Senator TAFT. Let me get back to one thing. Their cruiser capability with their antiship missiles involved there, I take it, are primarily aimed at our carriers.

Is that your concept of it?

Captain GREENE. Yes, sir. And a high initial shock impact [deleted]. It is a presence prior to hostilities and initial early shock exchange and no sustained battles, such as we have known before at sea.

Representative BROWN of Ohio. Their defense against our submarines? Is that an effective system at this point?

General GRAHAM. Would you like to go ahead?

Captain GREENE. A defense against our submarines?

Representative BROWN of Ohio. Yes.

Captain GREENE. With our nuclear attack submarines we have a capability that they have not [deleted].

Chairman PROXMIRE. Senator Taft, go right ahead.

Senator TAFT. The strike cruiser concept is going to be up before us. Our concept of a strike cruiser, I gather, is not primarily an antiship or anticarrier capability because they do not have that many carriers to warrant it.

Are we looking at a strike cruiser concept in a different way than the Russians are looking at theirs?

General GRAHAM. I am afraid we in intelligence would have to punt that one, Senator. That is a hard one for us.

Chairman PROXMIRE. I understand ours is for aircraft carrier protection.

Senator TAFT. There are two missions, the double mission. There is an independent operation mission that I really think is much more important. I do not think you can justify the thing on the escort protection except get one Aegis system out working on a new ship, if we could justify it that way, I guess.

U.S. LEAD IN MILITARY TECHNOLOGY

Chairman PROXMIRE. Do you agree that the United States leads the Russians in almost every high technology base in terms of bomber, submarines, computers, missiles, and other categories?

General GRAHAM. I think that in almost all military technologies we do lead them.

I am worried about several that are rather important, such as [deleted], the application of lasers.

Chairman PROXMIRE. That is right. What I am getting at is the fact that in some cases their costs are more than ours does not really tell us whether theirs is as effective as ours.

General GRAHAM. Of course not.

Chairman PROXMIRE. If you [deleted], then the comparison does not really indicate that they are getting more for the amount that they spend than we are.

SOVIET MILITARY AS PERCENTAGE OF GNP

General GRAHAM. Yes. I believe they are spending at least 15 percent of their GNP and probably more on military matters. Not that they are getting more out of it than us—certainly in terms of technical advances, I do not think so.

Chairman PROXMIRE. On that 15 percent, I got the impression that what you were doing in arriving at that 15 percent was that previously there were a lot of unexplained things in the budget, much of which undoubtedly was military. That would be the area where they undoubtedly would be more secret than the rest.

There seems now to be an assumption that you would take that residual amount that you could not explain and apply virtually all of it to the military. Now, if you do that it seems to me that they might have other things which are not military which might swell that amount, that percentage of their GNP and give you an untrue picture.

General GRAHAM. I am primarily swayed by [deleted]. That is not it.

Chairman PROXMIRE. I know they have some [deleted].

General GRAHAM. [Deleted.] As I related to you, I have grave suspicions that we might have been underestimating the ruble figures by a large factor. I never used the residual argument officially because it is a very complex thing and there are attempts by the people who work the costing methodology to knock it.

When the DIA military economists would address that problem, they would show me, as best they could, given my limited ability in economics, that probably this residual approach was wrong. [Deleted.]

MILITARY MANPOWER

Chairman PROXMIRE. There is a manpower distortion here, too. They undoubtedly do have twice as many people in the military as we have. That is one figure that they are pretty fairly solid on. They have over 4 million, we have 2 million. They do have that superiority.

However, is it not true that a great deal of this, No. 1, is concentrated on the Chinese border, confronting a Chinese threat? No. 2, there may be a difference with our volunteer army that we have people who spend more time in the military. All of us have had a little experience. I was in for 5 years in World War II. With new people you spend a tremendous amount of time in training and then lose them. If they have a 2-year turnover, it may now become, where in the past they had people for a longer term than we had in the Navy, now they have less than the average.

Is this not another element?

General GRAHAM. Indeed it is. I think, my figure on the total Soviet manpower is about 4.5 to 5 million.

Chairman PROXMIRE. 4.5 to 5 million? That is startling. We heard roughly [deleted] million, [deleted] million.

How do you get 4.5 to 5 million? Why is yours different?

General GRAHAM. As I understand it, we are in agreement with the CIA on this matter. I do not know why you would have a different figure.

Chairman PROXMIRE. They told us [deleted] million when they testified a few weeks ago on the same subject.

General GRAHAM. I honestly do not know. I do not know why there is a difference. I know last year we had about 4 million, and we found that we had failed to estimate the general support structure properly. I thought we were in fundamental agreement with the CIA on that.

I will look into it, Senator.

[The following information was subsequently supplied for the record.]

DISCREPANCY IN MANPOWER FIGURES

A recent reassessment developed jointly by DIA, CIA, NSA, and the Departments of the Army, Navy, and Air Force places the total Soviet military and militarized security forces at between 4.5 and 5 million personnel.

Chairman PROXMIRE. Does yours include civilians?

General GRAHAM. No.

Chairman PROXMIRE. In the Pentagon, I guess they would not quite fit in the Pentagon Building, a million civilians in the military.

General GRAHAM. There is a large number. I was going to address the number along the Sino-Soviet border.

I forgot the exact figure. I know Chou En Lai keeps talking about a million Russians up there. We have a smaller figure, one I have some doubts about. I think it is probably, over half a million men along that border.

One of the things that happens is that the Soviets draft about a half million men every 6 months. That is using my total manpower figure. If you use [deleted] million, it would be 300,000 to 400,000 men every 6 months. Every 6 months they replace a quarter of their draftees, and the Soviet Army's enlisted strength is almost all draftee.

I cannot give you a more exact figure. This fact book [indicating] does not give geographic breakdowns. The Soviets do not have places like Fort Dix and Fort Ord, where we provide basic training. Instead, they take recruits and put them right into the units.

Chairman PROXMIRE. They do not have basic training the way we do.

General GRAHAM. Not the way we do. The Ministry of Education, which I mentioned earlier as an item that was not covered in the Soviet defense budget, even the 56 to 57 billion ruble budget, the Ministry of Education takes care of what basic training they do get. They do get a certain amount of it in their high schools, the gymnasium, before they are ever drafted. But to the Soviet military themselves, this is an unsatisfactory system. It is not doing what it is supposed to do. The military get these new personnel in, say the Soviet forces in East Germany, every 6 months. This means they get a turnover of about a quarter of their enlisted men, and it puts their line unit in a training

mode. They have to do the sort of things that we do at Fort Dix right there in the division. That makes their combat effectiveness go up and down depending on when these recruits have come in.

It also means——

Chairman PROXMIRE. So much of the military today is technological as far as technological capability. You say they are using this to some extent as kind of a vocational training school. These people come in and learn the technology. Of course, for the first few months anyone learning any kind of technological job is a lot more of a burden than he is a help. You have to train him, you have to watch him, you have to supervise him, you have to correct him, you have to do the things he has done wrong over again.

For that reason this kind of turnover, as you say, going, from 2 to 3 years would tend to somewhat diminish the impact.

General GRAHAM. It does. It reduces their combat effectiveness. There is no doubt about that. They try to offset it by picking out NCO's early. They look at people to be drafted and they find where the brighter guys are. They pick them out and send them to NCO schools and so forth within the military structure. So they try to get their new NCO's trained better than the crop of privates that are going to be running through at the same time. But it is an imperfect system, and they do not come up with what the U.S. Army has, whereby we can rely heavily on a well-trained NCO who has been around for a long time and knows what he is doing. The Soviets simply have a terrible time getting anyone in the Soviet Army to re-up.

I speak Russian, so Sherman Kent, who was running the Office of National Estimates at one time when two Soviet privates defected, sent me over to talk to them. I was talking to these two young lads. I said, "Did they try to get you to reenlist?" They said, "Oh, yes, they are always after us to reenlist." "Does anybody reenlist?" They said, "Nobody ever does. We have never known anybody to reenlist." One of the privates said, "Ah, but do you remember there was that one guy?" And he named him. The other private said, "Yes, but he is a Tatar." They have utter contempt for a fellow who stays in beyond his term.

Chairman PROXMIRE. It is astonishing to me in this totalitarian society that they could get anybody to do anything they wanted to, offering them the carrot and stick to get it.

General GRAHAM. The Soviets offer them 10 times the wages that they get as draftees to re-up. People still will not do it.

Representative BROWN of Ohio. Is there evidence, at least, to social dissatisfaction, the draft, if it is so unpopular, now it may be unpopular getting into?

General GRAHAM. It is. You know, I do not think it is not a Soviet phenomenon. It is an old Russian phenomenon, wherein they used to have to draft men by getting them roaring drunk and throwing them in the back of a truck and then taking them off into the czar's army.

Representative BROWN of Ohio. It ended up into the revolution.

General GRAHAM. Yes; it did. Another effect it has is that the Soviets rely on junior officers to do things we would never have a junior officer do in the United States. I mean you see a junior officer running a switchboard, running a switchboard out in the field. We would have a corporal.

Sino-Soviet Border

Chairman Proxmire. Mr. Colby testified the Soviet Union has increased the number of divisions on the Chinese front from [deleted] to 40.

Do you agree with that estimate? Can you tell us how many of those divisions are full strength?

General Graham. Yes. They have increased to 40, I believe. Of that number, about [deleted] are at full strength.

Chairman Proxmire. Only [deleted]? What does that mean?

General Graham. The others are from one-third to three quarters strength. We find a different phenomenon along that border compared with other low-strength divisions in the Soviet Union. [Deleted.]

Overlap in the Intelligence Community

Chairman Proxmire. The Fitzhugh Blue Ribbon Panel in 1970 said there was too much overlap in the defense intelligence community. The DIA was created to do the overall intelligence job, yet you continue to have the Army Intelligence, Air Force Intelligence, and so forth, continuing.

Why does there have to be four more military intelligence organizations?

General Graham. There are certain functions that you simply cannot centralize. For instance, in my office there are no staff intelligence functions as far as advising the Army Chief of Staff on how many men should be in a battalion's reconnaissance platoon. That is Army business. That is not my business. I should not have a staff trying to monkey round with the internals of the Army's intelligence structure.

Further, each of the services has retained control of a part of the overall U.S. scientific and technical intelligence production effort, and I think that it makes sense. For instance, the Army has a thing called Foreign Science and Technology Center or FSTC for short. It is run by the Army, and it does the technical intelligence job for me on Army-type equipment. And that makes sense because FSTC has access to the Army labs that are developing our own equipment, and it can analyze the materials that come in on Soviet gear, or someone else's gear, a lot better and a lot more efficiently that I could if I absorbed that function.

The same is true with the Air Force's FTD, the same with the Navy's NISC.

Overestimating the Threat

Chairman Proxmire. In addition to the problem of waste, of just having people duplicating each other and doing the same thing, in your article on estimating a soldier's job, you noted that the military intelligence analysts have been responsible for a long string of misjudgments or bad judgments, overestimating the threat in many cases.

What is there to indicate that this is not continuing?

General Graham. I think that if you will examine the estimates that have been made since the Defense Intelligence Agency put together an estimates shop under Lt. Gen. Donald Bennett in 1970, you will find that defense estimates have been objective.

Chairman PROXMIRE. Let me give you an example, one that troubles me. This is an estimate that was made on Soviet and Chinese initiatives. You discussed this problem in your article when you referred to the bomber and missile gaps strongly forecast in the 1950's and early 1960's.

ICBM ESTIMATES

It seems to me that the problem is continuing. For instance, in his 1970 posture statement Secretary Laird said that flight testing of the Chinese intercontinental ballistic missile was expected to begin that year. That was 5 years ago. The Chinese might have 10 to 25 ICBM's in 1975.

Now it is revealed 5 years later that they do not have any. Is it that the Secretary did not adhere to DIA's estimate and made his wrong forecast in 1970?

How do you explain the disparity?

General GRAHAM. He was adhering to the whole community's estimate at that time. The DIA and CIA believed that to be the case. He was referring to a national estimate, which DIA had gone along with.

I think what happened to the Chinese ICBM, forces and here people would disagree with me——

MIRV ESTIMATES

Chairman PROXMIRE. You mentioned the misestimate of MIRV.

General GRAHAM. Yes; we did. The CIA and DIA both misestimated it. Every now and then, we read the tea leaves wrong. The notion that it is somehow a matter of the military intelligence people, the Pentagon, doing it independently of the rest of the intelligence community is simply not borne out by the record. The CIA and DIA were right together on the MIRV problem and also, as far as I can recall, on that Chinese estimate.

I think what really happened in the Chinese case is that the Chinese realized if they put out ICBM's that presented a constant threat to the United States, it would have an effect on the relationship beween the United States and China. I think they have changed their emphasis. What they are moving toward now is some kind of submarine-launched ballistic missile capability so that they can apply that threat only when they want to. Thus, it would not be a constant threat.

People disagree with me on that. Some say that it was a technical breakdown in the program, that technically they were not able to do it.

Chairman PROXMIRE. At any rate, here are a couple of examples of misestimates, misjudgments, of making a serious mistake. Can you give me examples the other way where the DIA has been accurate, where they have hit it on the nose or come close to it?

General GRAHAM. Yes. I gave you some in my statement. I mentioned, for example, that we were very good, I think, on prognosticating the rate at which the later surface-to-air missiles were deployed.

IMPORTANCE OF INITIAL ESTIMATES

Chairman PROXMIRE. These initial capabilities are very, very important. When you make those estimates, that influences us here. I have a

plaque on my door, it says national defense is our insurance policy. We must be No. 1. I feel that very strongly. We have to stay ahead of the Soviet Union, no matter what anybody argues. I did not go along with this other stuff, how we can trail them or follow them or so on.

For that reason I think a lot of people think as I do in the Congress and in the public. So that when we hear from the intelligence communities, the estimates of the initiatives that are wrong, as they were in these cases, we are likely to go ahead and engage in a commitment of resources which is unwise and wasteful.

General GRAHAM. I agree with you. In individual cases, I can address individual cases because I usually know the substantive background of why a particular judgment was made by the community.

TIMING OF SELECTIVENESS

Chairman PROXMIRE. Let me get into the timing and selectiveness that was released by the Pentagon about Soviet systems. I have said it seems that we get estimates of some new missile system or something just like the flowers bloom in the spring, whenever the Appropriations Committee begins to consider the budget. The patterns for the Pentagon to announce new Soviet institutes prior to the debates in Congress, the proposals for similar or counterpart initiatives.

So during the debate over a U.S. ABM we begin hearing about a Soviet MIRV or Chinese ICBM. During the debate of the B–1 bomber we heard about a new Soviet bomber, the Backfire. Over a debate of nuclear carriers we heard about the first Soviet carriers. Years later we learn that the Pentagon's estimates were not accurate.

General GRAHAM. They are estimates of the entire community—do not hang us with it.

Chairman PROXMIRE. The Soviet and Chinese systems either proceed more slowly than estimated or have less capability. What I would like to know is are there any written or other guidelines governing the release of such information? If so, what are they and who makes the decision in these cases?

General GRAHAM. I think that we are victims of a cycle here. The only time we ever get to talk to Congress about the threat is that cycle of contact which starts with the posture statements. New information comes in throughout the year, but its dissemination to Congress awaits somebody's having to go defend a budget. The fact that the information is available earlier gets obscured. I do not think we have enough contact with you on these matters.

Chairman PROXMIRE. These things are usually released and they should be. They have to be. I do not understand why they should not be released whenever the information can be verified and whenever you can sanitize. so obviously it does not have an adverse effect on our position in any way. That should occur, I would think, throughout the year.

General GRAHAM. On a random basis.

Chairman PROXMIRE. It always seems to occur just before we have our debate and make our decisions on the budget, the military budget.

General GRAHAM. You know, I can remember that when I was in the Office of National Estimates we changed the schedule for esti-

mates on certain subjects so that they would be ready for the legislative process.

Chairman PROXMIRE. I am just telling you if that is still the procedure, I think it is an unfortunate procedure. Whenever you get any significant information, the press will always give it attention and we will know about it.

General GRAHAM. I will say one thing, Senator. Except for your asking about it, this business of the increased estimate of Soviet spending would not have come out at this time. [Deleted.]

Chairman PROXMIRE. Is there not some way? Maybe there is not. [Deleted.]

General GRAHAM. I would be happy to talk to you about it. I will tell you everything I know.

Chairman PROXMIRE. I have talked to other people about it. I think I understand [deteled].

General GRAHAM. [Deleted.]

Chairman PROXMIRE. [Deleted.] I hope you could think about it and see if you could come up with something.

General GRAHAM. There is one thing that you or some of your staff might like to do, and that is to talk to the man who did this kind of analysis. He has been doing it for years and will be happy to talk to you.

Chairman PROXMIRE. We will do that. That will be very helpful.

ROLE OF SERVICES

The Director of the Defense Intelligence Agency reports directly to the Joint Chiefs of Staff and the Secretary of Defense, as I understand it.

General GRAHAM. Yes, sir.

Chairman PROXMIRE. The Fitzhugh report said this is inefficient and causes parochial service estimates rather than national estimates.

Have you found that there are pressures from the services for estimates of a certain type that you encounter that run counter with DIA estimates?

General GRAHAM. Yes, sir, there are differences of opinion that show the bias of the various services with respect to the positions we take. I allow the services, if they disagree with any estimate that DIA has put out unilaterally, to write anything they want for inclusion as a footnote so long as it is not obscene. But I am obliged to remain independent of their views and have to take my own position.

Chairman PROXMIRE. You are not responsible for the promotion of the men working for DIA? They are armed services, are they not? They are responsible to you not for the promotions. That is what I am saying.

General GRAHAM. If they do not get a good efficiency report from me, they are not going to get promoted.

Chairman PROXMIRE. That is true, but the promotion is finally determined, the final decision is made, by their services.

General GRAHAM. That is right.

Chairman PROXMIRE. If they are not responsive to their services. It is natural, you go to Annapolis, you are in the Navy, you go to West

Point or the Air Force Academy. You have your own set and fixed ideas. These are the people who work for you.

Does that not tend to provide a kind of a built-in bias, a loss of objectivity?

General GRAHAM. No, sir. I am glad you gave me the chance to take a swing at that shibboleth.

The fact is that the military officers that I get aboard in DIA are my best protection against DIA falling into the rut that other analytical outfits fall into, that rut being, "I said last year thus and so, therefore I am going to continue to say it. If I admit I made a mistake last year, it would hurt my GS rating."

I had a naval officer in my Estimates Directorate, a Navy captain who did a piece on Soviet ASW that ran the Navy right up the wall. But he knew what he was talking about. He was not hurt at all. He was offered a command of a squadron of submarines. Eventually he took over the Navy's technical intelligence field. My primary analyst on the Backfire bomber question when the DIA would not join the Air Force in saying that Backfire was definitely going to be for intercontinental missions was an Air Force officer. Such men are valuable because they know what is being done and what can be done militarily in U.S. Forces, and the notion that somehow these people in uniform are going to be running back to their service to find out what they should say in my intelligence organization is simply wrong.

Chairman PROXMIRE. I was not saying that they were going back to their service to find out what they should say. I would think to some extent you are loyal to your own service, the people you know, the people you have worked with, that you are going to go back to work, which brings me to my next question.

How long are the tours of duty at the DIA for military personnel?

General GRAHAM. Three to 4 years.

Chairman PROXMIRE. Is that not a relatively short time? Does that not mean they they really can learn their business and then go back?

General GRAHAM. Not at all. The men assigned to me, or almost all of them, are intelligence specialists, such as the Army's military intelligence officers—either that or they have had some connection with intelligence before they ever get here.

To me, a 4-year tour for the average officer in DIA is enough. It is better for him than to get back into some other field. The next time around when I get him, he'll be fresh again.

Chairman PROXMIRE. It seems to me intelligence is a complicated, technical field requiring a considerable amount of professionalism. While these men may have been in intelligence in their services, the DIA is different. It is broader, it cuts across these lines, and I would think that 3 years, even 4 years, might be kind of a short time.

RELATIONSHIP WITH CIA

What military intelligence estimates are now in substantial dispute between the DIA and the CIA?

General GRAHAM. I cannot think of any. You already hit the one where we do have a real problem. That is the problem of costing the Soviet and Chinese defense budgets.

Do we have any substantial disputes with CIA now?

Captain GREENE. No, sir.

Chairman PROXMIRE. Your views are the same. I realize, I think I understand you come to a common estimate. Otherwise, the CIA makes the final estimate.

General GRAHAM. Yes; those national estimates really are Mr. Colby's view. If I have anything different to say about them, I have a place at the bottom of the page.

Chairman PROXMIRE. At the bottom of the page. Have you expressed views different from him?

General GRAHAM. On military capability matters, no. As I stated earlier, DIA has in past years differed——

Chairman PROXMIRE. Let me put it this way. You saw the transcript of Director Colby's testimony. Is there anything in there with which you disagree?

General GRAHAM. Not beyond the costing. We are pretty much in agreement. He has very good analysts out there. They perform a good double check on us, and we have no substantial disagreement.

Chairman PROXMIRE. Do you have any interest in taking over any of the CIA's responsibilities in covert programs or analytical programs?

General GRAHAM. Covert, absolutely not. And no specific efforts, either, although I have stated that there is no need for duplication of military analysis except for those cases in which there is something of national interest [deleted].

Chairman PROXMIRE. Do you think you could do away with the Office of Strategic Research?

General GRAHAM. No; I do not think so. I think Mr. Colby needs the capability to arrive at an independent judgment on military matters that are of national importance. If you have a military matter that is important enough for the NSC to address it, then he needs the capability to address it.

Chairman PROXMIRE. What do you think DIA should do that CIA is now doing? Anything?

General GRAHAM. I cannot think of anything.

Chairman PROXMIRE. Has the DIA ever been involved——

General GRAHAM. I can think of a lot of things that DIA could do that CIA is doing. I cannot make a case, however, that they should be turned over to us.

COVERT OPERATIONS

Chairman PROXMIRE. Has the DIA ever been involved in any illegal domestic activities or activities in retrospect that may appear borderline, unwise, or questionable?

General GRAHAM. The DIA has done some unwise things, I think.

Chairman PROXMIRE. All right. You know what I am talking about. Unwise, I mean you made mistakes as every group of human beings makes mistakes.

General GRAHAM. I simply do not have a charter for anything that has to do with the surveillance of U.S. citizens, you know, non-DOD-affiliated personnel.

Chairman PROXMIRE. Any covert activity of any kind?

General GRAHAM. No covert activity. I do have cognizance of some of the covert activity done in the service organizations.

Chairman PROXMIRE. Do you use agents to secure information?

General GRAHAM. I have zero agents. I have the Defense Attaché Corps. That is the only collection operation directly responsible to me. The Defense attachés are responsible to me and they are overt.

Chariman PROXMIRE. How about the service organizations? Do they do any covert activities?

General GRAHAM. They do some covert activities. I do not know of any that would be classified as espionage. They have a number of things that are somewhat sensitive, but even those are fully coordinated with the CIA before they are ever allowed.

As a matter of fact, my people get into that coordination process, too. So, if the service organizations are doing anything that is covert in any way, they have to coordinate that with Central Intelligence.

Chairman PROXMIRE. The [deleted] program, [deleted] is that primarily CIA operated and run?

General GRAHAM. No, sir. [Deleted.]

Chairman PROXMIRE. I am going to ask if it is satisfactory to you, General, I am going to go up to vote. Meanwhile I am going to ask Dick Kaufman, who is the general counsel for the Joint Economic Committee, and Ron Tammen, who is my legislative assistant, to proceed with any questions they would like to proceed with, if it is all right with you.

General GRAHAM. That is all right.

Chairman PROXMIRE. I will ask Dick to take over and then if Ron has any questions. I will probably be back in a few minutes.

READINESS OF SOVIET DIVISIONS

Mr. KAUFMAN. General Brown, the Chairman of the Joint Chiefs states in his posture statement that the Russians deploy 166 army divisions in various stages of readiness. He then discusses our NATO commitments in the U.S. Army's current 13⅓ divisions and the proposal to increase that number to 16 divisions by eliminating some support and increasing the number of combat personnel.

This juxtaposition of 166 divisions on the Soviet side versus 13⅓ or 16 creates an impression of enormous disparity in the Soviet and U.S. ground forces and between the Warsaw pact and NATO armed forces.

What does General Brown mean when he states the Soviet divisions are in various states of readiness? How many are at full strength in the Warsaw Pact-NATO area? How many of the full strength divisions are on the Chinese border?

I think you mentioned a response to that latter part earlier.

General GRAHAM. Let me give you a general comment on that. [Deleted.]

The Soviets keep three levels of divisions. First, there is a full-strength division, what we call "category I," or in NATO we now call "category A." These are divisions that maintain at least 75 percent of their strength. They are essentially ready to go with the caveat that I mentioned to the Senator. You know, if they are right at the point that they have just received a bunch of recruits, their effectiveness is lower than later on in that training cycle.

Then there is category II, that is from about 75 percent down to half strength. The category III division is below that, and sometimes

on-hand strength goes down to as little as 20 percent of authorized strength.

In terms of equipment, category I divisions tend to have all of their combat equipment on hand. In the case of category II, some of them do not have their armored personnel carriers. Some of them do not have the proper number of general purpose force trucks, and these would have to be mobilized out of the civilian economy. With respect to category III, they tend to have older equipment and in some cases would be short of major combat items.

In category I divisions opposite NATO you have got, let me see—this fact book [indicating] does not really break it down. [Deleted.]

Moving on to your other question: These days Soviet ground forces are broken into three essential packages. They are approximately equal packages, if you do not get too finicky about what is, in fact, opposite NATO. If you take all down to Turkey and say those Soviet forces are opposite NATO, that changes the figures some. But you look at it in general, you have a third of them facing west against NATO, a third of them in the middle—the third incidentally that tends to have the lower strength divisions—and a third of them opposite China.

Those opposite NATO are at a higher strength level, generally speaking, than those opposite China.

Ground Forces Near Sino-Soviet Border

Mr. Kaufman. What the question was leading up to was a comparison of the full strength divisions facing NATO with the full strength divisions facing China and the overall size of the Soviet ground forces in those two areas.

Would it be correct to say that the overall size of those two ground forces are roughly the same?

General Graham. No, that would not be right. If you are talking about overall size, that is the total ground force plus tactical aviation plus other kinds of support——

Chairman Proxmire. We are talking strictly about the U.S.S.R.

General Graham. Not about the Warsaw Pact, just the U.S.S.R. I would say they have twice as much force opposite NATO.

Soviet and Chinese Military Assistance

Chairman Proxmire. Has the Defense Intelligence Agency or any other agency within the intelligence community made an estimate of the amount of foreign military assistance provided by the Soviet and the Chinese in military sales?

General Graham. Yes, sir. We gave those figures.

Chairman Proxmire. You see, because the figures that were released publicly showed that the United States exported about 54 percent of all of the military hardware exported last year. The Soviet Union was second but had less than half this much. Then France and Britain followed and were not very far down.

I am wondering if those estimates are correct, if you could contradict them, or if you could affirm them.

General Graham. I can do neither at this point. As we pointed out in our presentation, if you include exports to the Warsaw Pact allies of the Soviets as a part of their export of equipment, it changes the picture and would probably change those figures, although I am not

sure. If you are talking only about areas outside of our own, say, NATO and outside of the Warsaw Pact for the Soviet Union, then those figures would be more likely.

Chairman PROXMIRE. One of the problems I have here, as I understand it, we are making available to Iran, for instance, $10 billion worth of military procurement. In the last 2 or 3 years and projecting a little bit into the future, that is only part of what we are doing. This is for Iran and it is sold by American defense contractors.

On the other hand, when the Soviet Union makes their weaponry available to other countries, like North Vietnam and the Warsaw Pact nations, would this be separated out and not considered part of the Soviet military effort, because what we do in making this available to Iran and as many other countries throughout the world, as I understand it, that is not part of our military budget. It is separate.

General GRAHAM. Yes.

Chairman PROXMIRE. Part of it does not even go through the budget at all, I guess.

General GRAHAM. That is right.

I do not know whether that would show up in the Soviet military budget. I rather doubt it.

Chairman PROXMIRE. On that residual basis, it very well might.

General GRAHAM. One would have to look and see to determine what one did to account for that in the residual analysis.

Chairman PROXMIRE. That may be one of the elements of giving us a notion that the Soviet Union was bigger than it is in fact with this especially in comparison with this country.

General GRAHAM. In that analysis, yes, one would have to look to see how that was handled, and I do not know how it was handled.

[Deleted].

As far as the military sales from our side, I do not keep track of that.

Chairman PROXMIRE. Do you have estimates of Soviet and Chinese military aid in Vietnam and the Vietcong during the period of the Vietnam war? Can you give that to us?

General GRAHAM. I will give you somebody else's estimate because that, again, turns out in dollars and I do not believe it. I will give you what other people have said about it in dollars.

Chairman PROXMIRE. The CIA estimate we have. It was released publicly.

General GRAHAM. I would be happy to supply that one for you if you would like. I do not believe it.

Chairman PROXMIRE. Why are our military assistance figures excluded from the budget?

General GRAHAM. I do not know, sir. That is not my area of responsibility.

SUBVERSION IN PORTUGAL

Chairman PROXMIRE. Do you have any estimates of how much, if any, the Soviet Union has spent on subversion in Portugal?

General GRAHAM. No, we do not have a figure. We know that a lot of funds were flowing in there.

Chairman PROXMIRE. Yould you say a lot is enough to be a major factor in toppling the Portuguese Government and the rise of the Communist Party in Portugal?

General GRAHAM. Yes, sir.

Chairman PROXMIRE. Do you think that was one of the big factors?

General GRAHAM. Yes, sir.

Chairman PROXMIRE. You do not have an estimate?

General GRAHAM. I do not know. I do not have a figure.

Chairman PROXMIRE. Do you have any estimate on what is likely to develop in Portugal?

General GRAHAM. Yes, sir. I think that the Socialist and the other moderate party there have decided that they are going to die if they stay in bed with the Communists. They are challenging now. One of two things is going to happen. Either the Socialists and their allies will drive the radical part of the AFM plus the PCP back to a moderate course, or the PCP will seize control.

Chairman PROXMIRE. The military is crucial. The fight is over the hardened mind of the military. If the military goes with the Communists, that is it.

On the other hand, if the military stays with the more moderate forces, there is hope. It is the military that will make that decision, I would think, would they not?

General GRAHAM. [Deleted.]

Chairman PROXMIRE. Could you give us your estimate of what will happen?

General GRAHAM. [Deleted.]

Chairman PROXMIRE. Do you have any estimates on how much Russia and the People's Republic of China spend on subversion?

General GRAHAM. No, no idea.

Chairman PROXMIRE. Do you know whether it has increased or decreased?

General GRAHAM. No, sir. I simply do not have any element of my organization that would be addressing that problem.

Chairman PROXMIRE. Do you have any way of knowing how the Russian spending in Portugal would compare with U.S. spending in Chile, for example, or the Chilean Allende government?

General GRAHAM. No, I do not have good figures on either one of those.

PRC DEFENSE PROCUREMENT

Chairman PROXMIRE. The CIA estimates that the Chinese defense procurement has [deleted] since 1971, defense procurement.

Do you agree or disagree?

General GRAHAM. I agree.

Chairman PROXMIRE. You have that one chart that indicated that. How do you explain that trend?

General GRAHAM. Well.——

Chairman PROXMIRE. Détente with this country?

General GRAHAM. That in part, yes, sir. [Deleted.]

PRC R. & D.

Chairman PROXMIRE. Do you differ with the CIA on the estimate of the amount the Chinese are spending in research and development, R. & D?

General GRAHAM. I have no independent estimate. I do not believe the CIA estimates, when they are expressed in dollars. The yuan-dollar ratios are even worse than the ruble-dollar ratios.

Chairman PROXMIRE. Are they going up or down? Do you have a feeling?

General GRAHAM. In R. & D.?

Chairman PROXMIRE. Yes.

General GRAHAM. I have a feeling that R. & D. is [deleted].

Chairman PROXMIRE. Does the CIA disagree with you on that?

General GRAHAM. I do not think there is a disagreement with the CIA on that.

Chairman PROXMIRE. Let me read you an article by Henry Bradsher. This was about 4 days ago, July 16.

Based upon the JAC study it says:

> A massive new governmental study of the rapidly growing Chinese economy has come down on the side of CIA in a dispute with the Pentagon over the size of Peking's military spending. The volume of expert studies collected for Congress Joint Economic Committee report that China's production of military equipment has dropped sharply since 1971. The key study concludes that the percentage of gross national product allocated to military purposes is appreciably lower now. This CIA viewpoint has been hotly argued for some time in the Pentagon's DIA, Defense Intelligence Agency.
>
> It believes that the decline in weapons has meant an increase in spending on research and development to modernize the aging Chinese military machine rather than meaning a decline in overall defense allocations.

Is that article wrong?

General GRAHAM. That is nonsense. If there had been any argument with CIA about that matter, it certainly would have come to my attention. The first time I ever heard about any argument between my people and CIA on this matter was in that article. So where is our argument with CIA? Nobody in my outfit is arguing with CIA about that. It is all pure bunk.

U.S. AND SOVIET TANKS COMPARED

Chairman PROXMIRE. I just have a couple more questions.

General Brown states that our main battletank, the M–60, is comparable to the Soviet T–62. In fact, is not the M–60 superior to the T–62 in such respects as range, accuracy, reloadability, armor piercing capability? Is it not also the case that DOD spokesmen previously estimated that the T–62 would be superior to the U.S. tank?

General GRAHAM. I would have to get a U.S. tank expert in to answer that for you with any degree of accuracy, Senator. I think that they are comparable in terms of medium tanks having the same basic mission. Our tank does outrange their tank.

Chairman PROXMIRE. Does it have a greater accuracy?

General GRAHAM. I do not know about accuracy. I think we have better sights on ours. If you have a well-trained man on our tank and a well-trained man on the Soviet tank, our guy would probably do better.

Chairman PROXMIRE. How about reloadability?

General GRAHAM. Well, I have been in a T–62 and it has a very cramped turret, and you have to be a left-handed midget because you have to load the darn thing from the wrong side of the breech. And

you have to be about my size. If they run out of left-handed midgets in the Soviet Union, they are going to be in big trouble with the T–62.

To that extent I agree with you. It seems to me "comparable" is a reasonable word.

Chairman PROXMIRE. Comparable but inferior?

General GRAHAM. Comparable but in some ways inferior. There are some things about the T–62——

Chairman PROXMIRE. Is it superior in any way?

General GRAHAM. It has a lower silhouette for one thing. It is not faster. I believe it has an excellent gun on it as far as penetrability, and it does have a superior anti-CBR system.

Chairman PROXMIRE. I understand that armor piercing capability—are they ahead of us or the same or behind us?

General GRAHAM. I think that they are the same, and I think that we have some developments coming up where we will beat them.

Chairman PROXMIRE. On armor piercing capability?

General GRAHAM. That is right. It is a combination of the armor and the gun. [Deleted.]

Chairman PROXMIRE. I understand the Russians have begun production of the new tank, the T–70.

General GRAHAM. Yes, sir.

Chairman PROXMIRE. Although none have been deployed as yet, can you estimate the cost of the T–62 and the M–60? Can you also briefly compare the cost-effectiveness of the T–70 and the M–60?

General GRAHAM. No; I cannot do that. Again, I can supply you figures only on the Soviet systems—the T–62 and the T–72, also known as the M–1970. Again, I will be very leery of the figures because they will come out in dollars.

Chairman PROXMIRE. Would you do that for the record?

General GRAHAM. Yes.

[The following information was subsequently supplied for the record:]

INFORMATION ON SOVIET T–62 AND M–1970 TANKS

	Comparison of Soviet main battle tanks	
	T–62	M–1970
FIREPOWER		
Armament	115 mm smoothbore gun	Looks like 115-mm.
	7.62 mm coaxial MG, 12.7 mm AA machine-gun on loaders hatch.	Probably has 7.62 mm MG.
Basic load	40 rounds 115 mm, 3,500 rounds 7.62	Probably not much change in main gun basic load.
MOBILITY		
Weight	40 tons	Around 40 tons.
Engine	580 horsepower diesel	Probably higher output.
Horsepower per ton	14:1	Possibly as high as 20:1.
Crusing range	310 miles	Probably near the same.
Speed	30 miles per hour on road	Estimated 40 miles per hour on road.
Suspension	Flat track, dry pin	Improved, greater road wheel travel and live track.
PROTECTION		
Maximum turret armor	At least 6.5 in	Improved obliquity (70°) of glacis.
Maximum hull armor	At least 4 in at 60°	Indicates higher level of ballistic protection.
CBR	Crew must wear masks	Thickened hatch indicates possible radiation liner.
CREW		
Number of crewmen	4	Unknown.

Chairman PROXMIRE. We are not trying to single out the Defense Intelligence Agency when we talk about misestimates. We understand the DIA is part of the entire intelligence community and that all are responsible for the official estimates.

Do you have any suggestions, General, as to how we could get a comparison between the capability and the effectiveness and the expenditure by the Soviet Union and by this country? I understood you to say that that was not your job, but you had some opinions on it that this was not your responsibility and you were reluctant to go into that in much detail. The CIA, of course, gave us that. That is their job.

Is there anyone else in the Pentagon?

General GRAHAM. Yes, sir. We have a Director, Net Assessment, Mr. Andrew Marshall, who is specifically working on the problem of how to compare force on force.

First you have to put together all of the pieces.

Chairman PROXMIRE. What is his title? What is his position?

General GRAHAM. Director, Net Assessment.

Chairman PROXMIRE. Is he a Ph. D.?

General GRAHAM. No, sir.

Chairman PROXMIRE. That is a new office?

General GRAHAM. Right. It has been there for only about a year.

Chairman PROXMIRE. I think it would be very helpful for us to get that kind of comparison of data.[1]

General GRAHAM. I may add a note on that, Senator.

NUMERICAL COMPARISONS MISLEADING

Numerical comparisons are very misleading. They can mislead in two directions. One is that a disparity in numbers can lead you to insist that you have got to match the numbers, or a disparity in numbers can cause you to throw up your hands in despair. Take the situation with respect to divisions—166 Soviet divisions and NATO's however you want to count them, 24. Now, 166 divisions are not going to sneak up on NATO. So long as those of us in intelligence have any sources left to keep track of what the Soviets are doing, they will not all sneak up on NATO, but some part of them will and they will be at various levels of effectiveness. A 24-division outfit can handle a 90-division outfit provided the effectiveness is there and the warning is there that the 90 are on the way.

This 90–24 disparity in forces should not cause one to despair. We don't have to have 90 divisions to face them.

Chairman PROXMIRE. You see, all of this puts us in the Congress in kind of a dilemma. I am glad that you conclude on that basis because I think that is a very helpful comparison. Anyone looking at that superficially would say they have overwhelming power and their power is so enormous, we would have to go immediately to nuclear weapons or make some other conclusion.

The difficulty is that this is a very, very complicated comparison overall. We are undoubtedly way ahead of the Soviet Union, for example, in aircraft carriers. We are way ahead in bombers. We are way ahead in warheads. We are way ahead in the accuracy of our weapons, by and large. We have many, many advantages.

[1] See Mr. Marshall's response, pp. 153–177.

Our economy is far more productive. We can probably shift if there were a war. That would take time. And we have greater potential than they have. But they have advantages too, as we have indicated.

Comparing the two is extraordinarily difficult but that is something we have to do because this is one of the bases for our making this kind of colossal commitment.

I remember President Johnson, when he spoke in Baltimore back in about 1967, argued that while of course he had great admiration and respect for the military people, in the military forces, as all of us do and should have, nevertheless when we appropriate money for weapons system, it is a sign of failure for our system. It means we have not been able to solve the problem peacefully. We have to do it but it is something that does not give us a better life. It does not provide more education. It does not do any of the things that we should allocate our resources for.

For that reason, we only do this when we have to do it, I do know we have to do it. We have to get some kind of estimate of what they have against us, and this is very, very difficult to appraise. Even though it is hard, we have to keep at it.

And your testimony this morning has been extremely useful. You have been most responsive and cooperative. I deeply appreciate it.

We will appreciate it, too, if you could sanitize the hearing as soon as you conveniently can.

General GRAHAM. We certainly will, sir.

Chairman PROXMIRE. Fine. Thank you very much.

The subcommittee stands adjourned.

[Whereupon, at 1:05 p.m., the subcommittee adjourned, subject to the call of the Chair.]

[The charts referenced in General Graham's statement follow:]

Figure 1

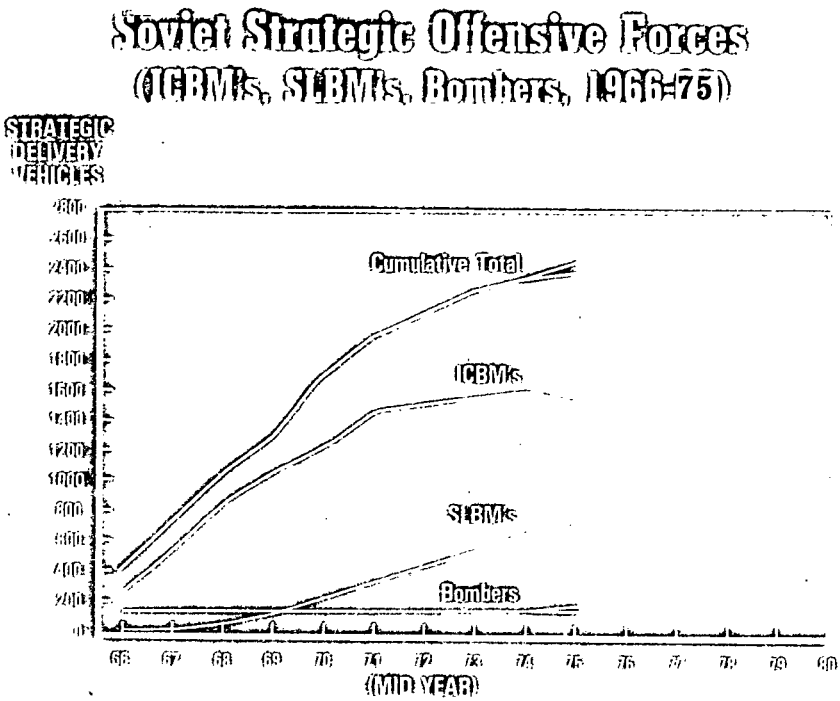

Soviet Strategic Offensive Forces
(ICBMs, SLBMs, Bombers, 1966-75)
STRATEGIC DELIVERY VEHICLES
Cumulative Total
ICBMs
SLBMs
Bombers
(MID YEAR)

Figure 2

Soviet Strategic SAM Launchers

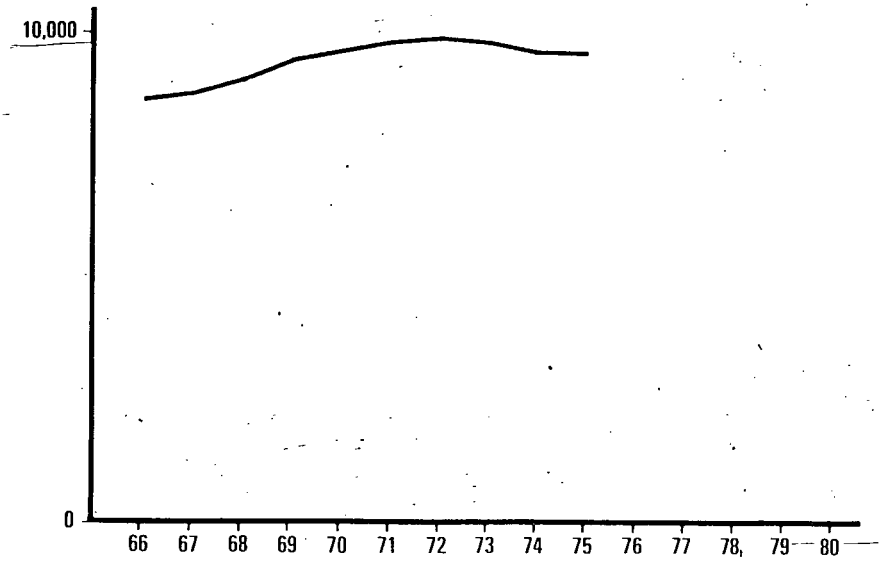


Figure 3

Soviet APVO Interceptors

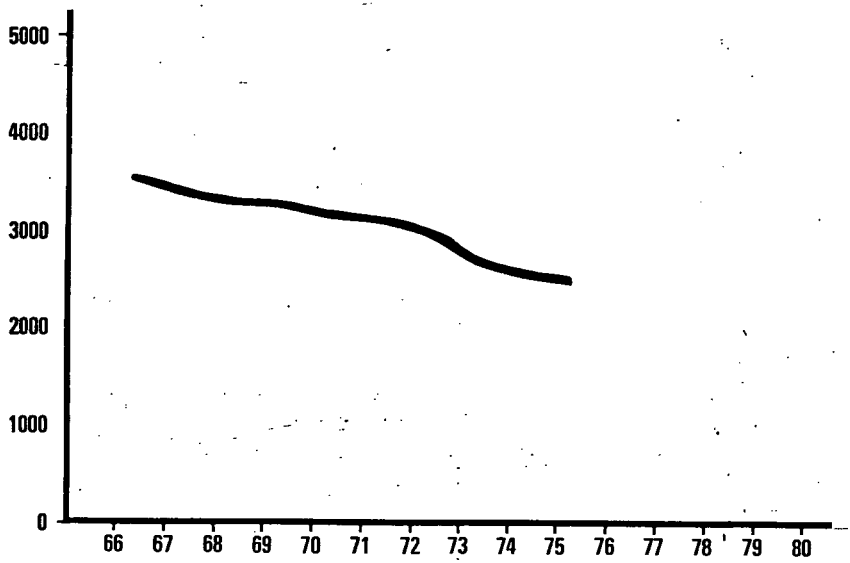


Figure 4

Soviet ABM Launchers

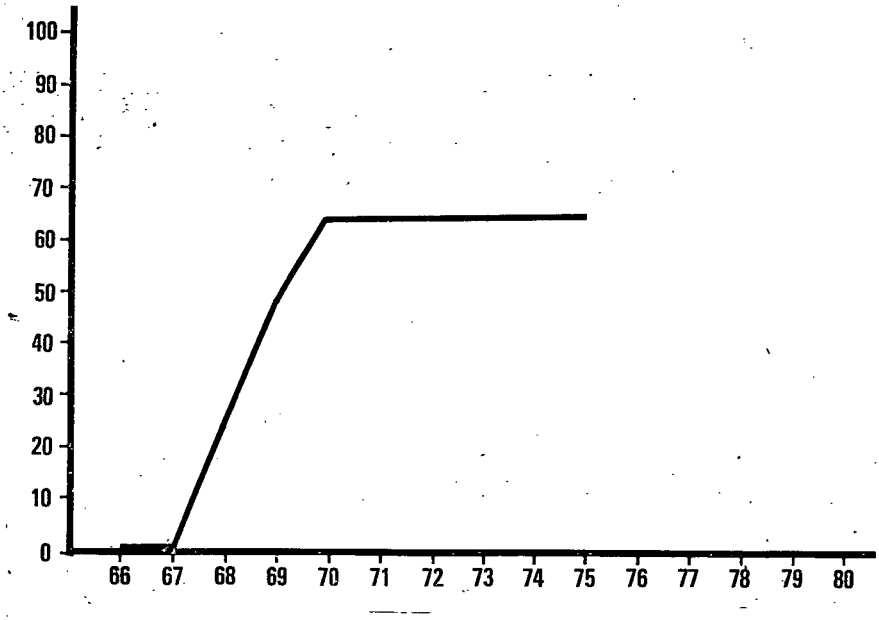


Figure 5

SOVIET GROUND FORCES: NUMBER OF DIVISIONS BY TYPE

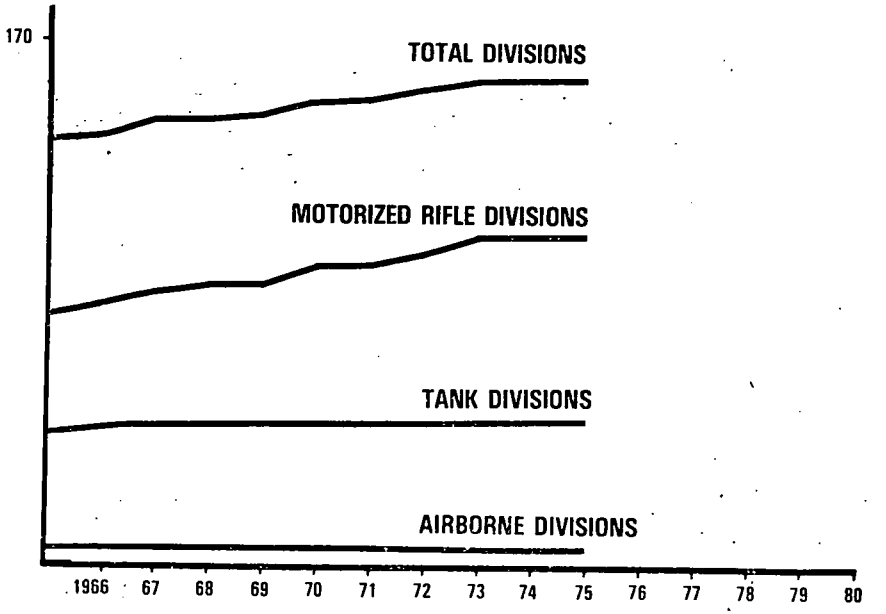


Figure 6

Soviet Large Surface Combatants

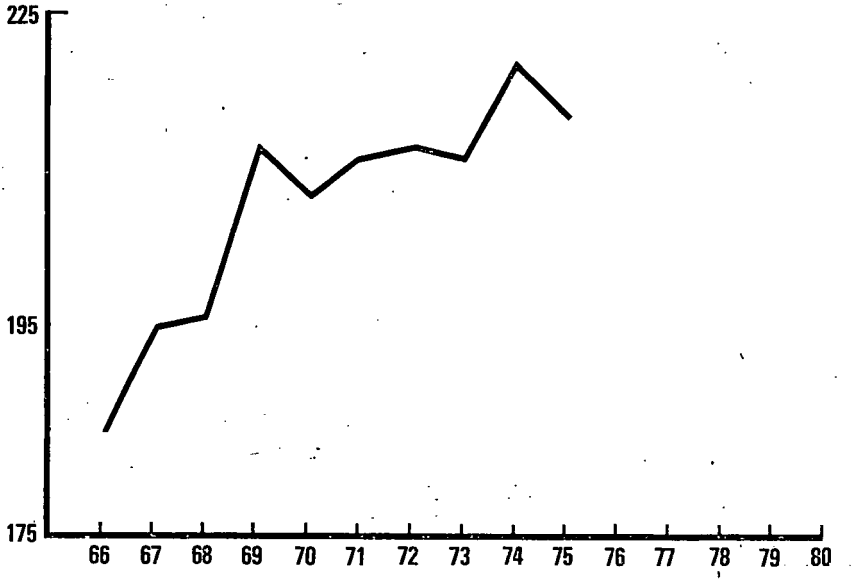


Figure 7

Soviet General Purpose Submarines

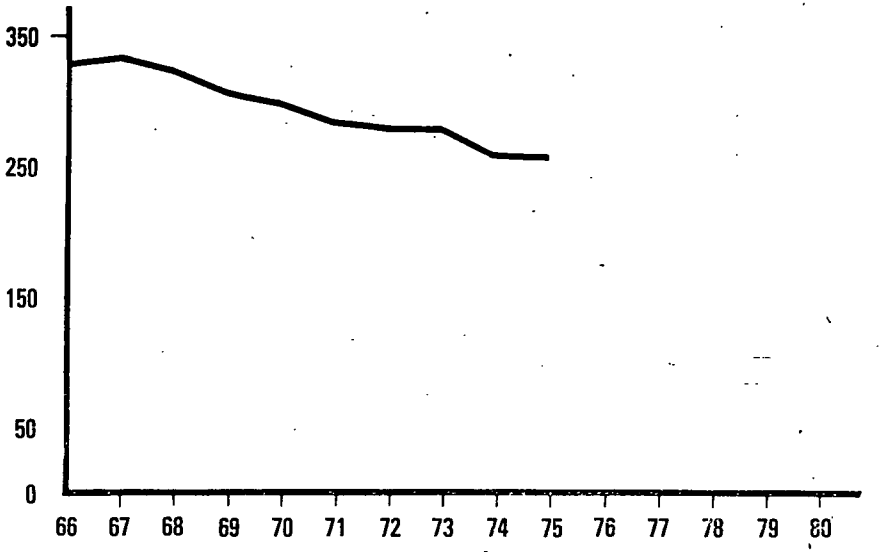


Figure 8

Soviet Frontal Aviation

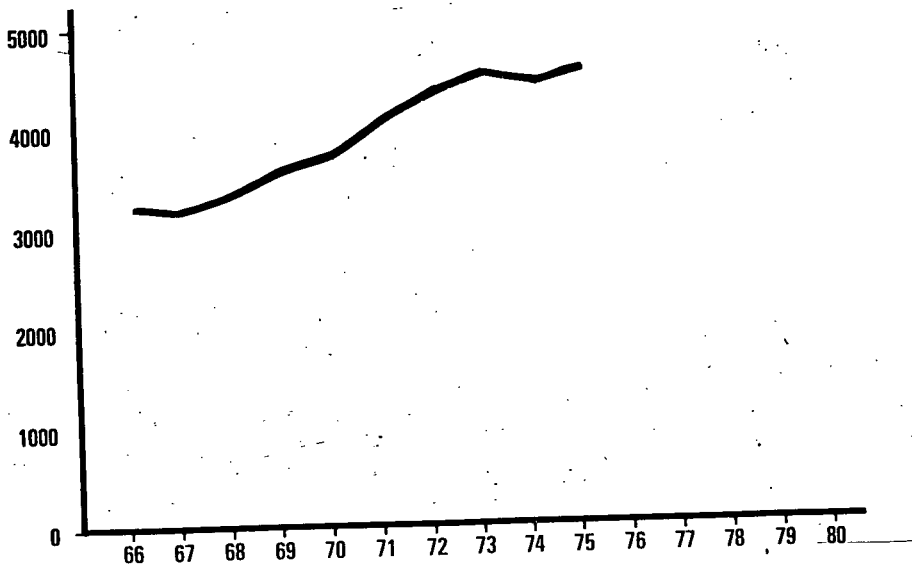
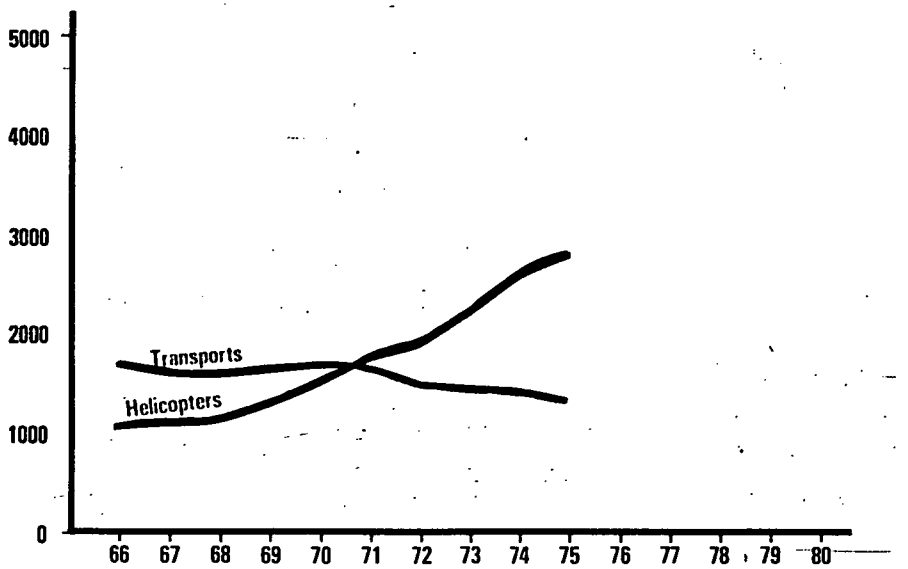


Figure 9

Soviet Military Air Transport Forces



APPENDIX

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

DIRECTOR OF NET ASSESSMENT

20 October 1975

Mr. Richard Kaufman
Joint Economic Committee
Room G-133, Dirksen Senate Bldg.
Washington, D. C. 20510

Dear Mr. Kaufman:

The material at Tab A presents a summary of my views on (1) the value of and problems with currently available estimates of Soviet Union defense expenditures and (2) how Soviet and U.S. defense expenditures can best be compared. In general it follows the points I made in our discussion a couple of weeks ago.

Properly conceived and executed analyses of comparative U.S. and Soviet defense expenditures can provide valuable insights into the status and trends of the two defense efforts. However, current official estimates of the Soviet programs have some serious shortcomings. The "burden" analyses concentrate too narrowly on the economic opportunity cost of defense, and neglect the important non-economic factors which determine how this opportunity cost is perceived and reacted to by the effective decisionmaking groups. Even with regard to the narrow economic concept, current analyses are not convincing, for a variety of reasons discussed in Tab A. Soviet defense activities are much more likely to absorb, in my opinion, 10 to 20 percent of Soviet GNP than the 6 to 8 percent indicated by past CIA studies. There are considerable uncertainties in all these estimates, but over the course of the next couple of years improved estimates and comparisons could be available.

I believe the methodology used to estimate the absolute dollar size of Soviet military activity involves a number of shortcomings which, on balance, underestimate the Soviet size relative to the appropriately

comparable U.S. defense expenditures. The general trends shown by the comparative dollar size analyses do seem reliable, however. When measured in constant dollar terms, the magnitude of Soviet military activity has increased steadily since at least 1964, whereas the comparable U.S. real expenditure levels decreased from 1969 to 1973, inclusive.

The annual allocation of resources to Soviet military activity has exceeded its counterpart in the United States in every year since 1971, inclusive, and in calendar year 1974 exceeded the counterpart U.S. defense expenditures by at least the 20 percent estimated by the CIA analysis.

These comparative sizing analyses of U.S. and Soviet military activity focus on the size of the input of resources to the two military establishments, and not upon the relative efficiency with which these resources are used. The way in which the dollar cost of the Soviet program is estimated does, however, reflect in part the different sorts of capabilities the Soviets build into their weapons and forces. Doing this appropriately is a complex undertaking that I believe needs review and my office is directing an effort to do that job better.

There are some interesting trends in Soviet weaponry that will affect comparisons of forces and resources. Recent analyses indicate that the major new Soviet land armaments and tactical aircraft introduced since the mid 1960s are substantially more complex, and incorporate significantly more military capability, than the weapons they are replacing. Such trends as these imply that the Soviet forces can no longer be viewed as quantitatively large, but qualitatively second rate.

Much more can be done than has been done in the past in these difficult issues of military efficiency, capability, and the military balance. A number of studies we have started focus attention on U.S. and Soviet training, maintenance and other qualitative factors that are important to the effective performance of the two forces. We are trying to move beyond the usual analyses that stop at counting men and equipment, and the assessment of the technical excellence of weapons. When these studies begin to produce results I would be glad to discuss them with you.

Sincerely,

Andrew W. Marshall

ANDREW W. MARSHALL
Director, Net Assessment

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

DIRECTOR OF NET ASSESSMENT

(TAB A)

16 September 1975

COMPARISONS OF US AND SU DEFENSE EXPENDITURES

I. General Introduction

A. Outline of the Issues

In the literature and policy discussions which refer to comparative US and Soviet defense expenditures two distinct questions are addressed. One is the "burden" question, which attempts to shed light upon the strains which the production, maintenance, and operation of the respective defense establishments impose upon the two societies. The other is the "sizing" question, which attempts to provide a consistent measure of the relative magnitude of the two defense efforts. The concepts of "burden" and "size" are not precisely or uniquely defined even in abstract terms, and are frequently inappropriately mingled in discussions and analyses.

In general the two issues may be distinguished along the following lines. The burden issue is focused upon the ability and willingness of a nation to sustain real defense expenditures at a given or increasing level over an extended period of time. What are the physical (economic) factors which constrain the ability of a nation's economy to carry the "burden" of the military programs? What are the non-economic factors that influence the nation's perception of the economic cost of defense, and therefore influence the national willingness to continue to allocate resources to defense at given levels? Although an adequate treatment of the burden issue must view a society's defense effort in relation to a number of parameters, the point to be emphasized is that all of these parameters are domestic, i.e., they are descriptive of the specific society in question. Consequently, the burden issue is one which is internally oriented, and the units of measure which are applied to a country's defense program must scale that program to such other domestic parameters as are considered relevant, in so far as these are measurable.

The sizing question, however, attempts to compare the magnitude of one country's defense effort to that of another country. For this task the units of measure which are applied to the defense activities

of one country must be consistently applied to the defense activities of the other country. In an important sense the units of measure in the sizing analyses are arbitrary; what is required is that comparable military resources be entered in the sizing of one military force with the same weight as they are entered in the other military force. This does not imply that an adequate sizing of a nation's military effort can be achieved by a simple linear combination of physical military elements using straight forward or obvious value weights. The question of what weights are appropriate for the entering of tanks, aircraft, men, etc., is complex, and depends not only on their numbers and physical characteristics, but also on the practices which determine how these physical elements are organized, operated, deployed, and trained. However, once a given system of measurement is selected and applied consistently to each of two (or more) military efforts, their relative size can be discussed (subject to the system chosen) as one input to the question of the appropriateness of that relation.

The issues of burden and size are therefore distinct in concept, in the questions to which they are oriented, and in the principles of consistency appropriate to each. With due acknowledgement to the fact that principles are easier to state than to follow, these distinctions are not always maintained.

B. Outline of the Estimation Processes

Estimates of Soviet defense activities are provided in dollar and ruble terms. Both estimates begin with the detailed identification and listing of the physical components and activities which define the Soviet defense program for a given year. By a variety of methods this common physical data base is converted into two aggregates, one denominated in rubles, the other in dollars. For certain components, conversions are made from one value base to the other by applying ruble-to-dollar ratios which reflect the estimated relative efficiency of the Soviet Union and the US in a particular activity.

The point to be noted is that the ruble and dollar estimates of Soviet defense activity are interdependent, both through the common physical data base and through the conversion factors. Biases which appear in one estimate, therefore, can influence the other in a similar fashion. This is particularly true of those errors which affect the estimation of the physical resources actually allocated by the Soviets to defense activities. In the following pages specific examples of such biases will be discussed without

repeating that they apply to both the ruble and the dollar estimations. A listing of the major biases which influence both estimates through the physical data base includes the failure to fully represent:

--Soviet defense resources provided by non-defense ministries.

--The resource requirements of extreme Soviet locational and climactic conditions.

--Soviet manpower, especially of the higher command and general support levels.

--The increasing sophistication of recent Soviet weapons.

II. Burden Estimates

A. Summary of Major Points

Burden analyses should be considered as one input into appraising the status and future of the long run competition between the United States and the Soviet Union. How long can the two nations continue to sustain large scale military forces; which feels the strain the most, and what are the implications of these perceptions? Existing burden analyses have concentrated on only a limited aspect of this question, the economic opportunity cost of US and Soviet defense expenditures. A good assessment of comparative economic opportunities cost would be very valuable. But such a focus is too narrowly economic, and excludes important bureaucratic, ideological, historical and other factors which influence how the economic cost of defense is perceived by the effective decision-making hierarchies of given nations. We need to understand much more about these non-economic factors, particularly in the Soviet case. Until we do, comments to the effect that the burden of Soviet defense is not a heavy one are not persuasive.

Moreover, even in their analyses of the opportunity cost of Soviet defense, present studies are not convincing. There are a number of Soviet national policies which suggest that present estimates of the proportion of gross national product absorbed by defense significantly under-represent the real resource drain of the Soviet military. Several examples come to mind: the dispersion and location, for national security reasons, of civilian oriented production units which may increase costs of production or require more investment than would be needed in more economic locations; selective streaming of resources to the military production sector; the extraordinary costs of creating a supporting environment for the Soviet force build-up along the Sino Soviet border.

In the past few years we have obtained some intelligence and other information which suggest that Soviet military production may not be as efficient relative to the Soviet civil sector or to US production as has been assumed. This would mean, if it is confirmed, that the dollar-ruble ratios used by the CIA to translate their dollar cost estimates of Soviet programs to ruble estimates have underestimated the ruble cost of the Soviet programs.

For these reasons and others past burden analyses which indicate that Soviet military activities absorb only 6-8% of GNP are suspect. The CIA now is much less confident that the percentage of GNP is this low. I believe the more likely range is 10-20%, which reflects an increase overall and more uncertainty as to our current ability to measure the economic burden of the Soviet defense programs. We need much more sophisticated analyses both of the broader interpretation of burden, and more convincing estimates of the opportunity cost of the Soviet defense effort.

B. The Opportunity Cost Measure of Burden

1. Rationale and Measurement of Opportunity Cost

The issue of the burden imposed upon the US or Soviet society by defense programs arises in the context of the long run political-military competition in which the two countries are engaged. Without attempting to define the nature of that competition, it is clear that there is in part an adversary relation between the two countries, and that each sees its military force as one dimension in the competition. How long can that competition be sustained? Which nation is most burdened by the resource drain of military forces? Which will find its "burden" too heavy to carry?

The resources allocated to a nation's defense effort represent one dimension of the burden of defense. These resources are diverted from other national objectives with perhaps more popular appeal, and reduce the nation's capability to increase future production in non-defense areas through investment. Allocation of resources to defense, therefore, imposes upon a nation an opportunity cost in terms of foregone achievements in the other components of gross national product. It is common to term this opportunity cost the "burden" of defense, and to quantify it as a percentage of the nation's GNP. For any given year, the percentage is calculated by dividing the value of the resources allocated to defense by the value of that year's GNP, where both values are--or should be--calculated using

the nation's domestic relative price structure. However, there are several points which should be raised.

First, the purpose of the percentage calculation is to represent the relative size of the non-defense production which is foregone by allocating resources to defense. This means that the defense resources and GNP must be measured in terms of the same domestic relative price structure. The assumption is that the domestic relative price structure represents with some accuracy the relative value of the resources in producing real product independent of the particular sector in which they are employed. Since the relative productivity of resources will vary between economies, so will the relative prices of those resources. It follows that attempts to estimate the opportunity cost burden of defense to a given society must involve in principle defense expenditures and GNP calculated in terms of that society's realtive price structure. No legitimate insights regarding burden can be drawn from Soviet defense percentages calculated in terms of dollar weighted variables, or from US defense percentages calculated in terms of ruble weighted variables.

The second point relates to the assumption, noted above, that a country's price structure represents the relative value of resources in producing real product independent of the particular sector in which they are employed. In an economy such as that of the US, where prices are determined principally by market forces, where industrial units producing military products are closely integrated into the civilian product and resource markets, and where the sets of incentives and constraints which apply to military production are not different in kind from those which apply to civilian production, this assumption can be accepted as reasonably accurate, and a dollar's worth of defense resources accepted as implying a dollar's worth of divil output foregone. However, where, as in the Soviet Union, those descriptive characteristics do not generally apply, it is not likely that the productivity of resources is independent of their sector of employment.

More particularly, there are two general reasons to believe that a ruble's worth of resources transferred from the Soviet military production sector to civilian production will not result in a ruble's worth of real civilian output. First, the ruble prices of resources in the Soviet Union are established by bureaucratic decision, and not by the interaction of market forces. As a consequence they

cannot be accepted as reflecting the opportunity cost of the resources to which they apply. A specific example is found in the extremely low wage and benefits in kind paid to the Soviet conscripts which comprise the majority of Soviet military manpower. Current CIA estimations attempt to correct for this distortion (and a range of others, including distortions in the rate of return to capital between sectors) by shadow pricing conscriptees at wage levels which seem reasonable approximations of their (higher) opportunity cost. Similar distortions permeate the Soviet price system, and suggest that observed ruble prices can seldom be taken at face value as an adequate reflection of resource productivity within the Soviet System.

The second, and perhaps more pervasive type of distortion, involves a whole range of Soviet national policies which are not fully reflected in the current estimates, and which tend to increase the real cost of Soviet national defense in ways not reflected in established prices.

2. Soviet National Policies Not Fully Represented in Current Burden Estimates

There are a range of Soviet policies or practices which accord preferences to military production over civilian counterparts and, on balance, increase the opportunity cost of military activity in ways not reflected by the price structure nor captured adequately by current estimates. As a first example, selective streaming of high quality human and material resources into the military sector, and away from civilian oriented activity, has been practiced over a long period. The military research and development (MR&D) sector, for example, has clear preference over the civilian counterpart (CR&D) in obtaining the best scientists in a broad range of fields (applied math, computer science, systems analysis, bio-chemistry, bio-physics), and the resulting quality differentials are only partially reflected in differential wages between the sectors.

Second, there are some reports of accounting practices which systematically under-price military production relative to civilian production. MR&D and military production in general are more capital intensive than their corresponding civilian activities. Since the use of investment funds is subsidized throughout the economy, this relative capital intensity conveys a cost advantage to MR&D over CR&D. In addition, the allocation of overhead costs in plants which produce both military and civilian goods is said to be done in proportion to the respective shares of total labor costs. This appears

to be an arbitrary accounting practice which may shift production costs from more capital intensive military products to more labor intensive civilian products. In so far as observed ruble prices are used to ruble price Soviet military activity and Soviet GNP, such accounting practices would tend to underprice the former relative to the latter.

Other sources of underestimation of the real cost of Soviet military activity derive from direct or indirect subsidies (financial or material) from non-defense Ministries, or the society at large. As a specific example one can cite the extensive system of pre-military training (PMT) which is intended to prepare Soviet youth for military service. The Soviet PMT does not receive budgeted defense funds, but is supported financially and materially through a variety of sources such as membership dues, donations from non-military enterprise, lottery revenues, and state grants. Some state aid comes indirectly through the Ministries of Defense and Education, with the latter funding the estimated 75,000-100,000 instructors working full or part time, as well as providing other assistance to the program. The PMT program does not appear very efficient in its primary goal of early military preparation, and there are undoubtedly some aspects of the program which benefit the civil economy. Nonetheless, by inculcating patriotism and respect for the armed services, in preparing specialists for the armed services, and in upgrading the quality of conscripts and reserve forces, the PMT program contributes to Soviet national defense and imposes a resource cost which is not now included fully in our estimates of Soviet defense activity.

Resource requirement costs associated with peculiar locations or climactic conditions impinge on both civilian and military activities in ways which increase the costs of Soviet defense, but which also are not adequately reflected in current estimates. We believe there exists a national program for the dispersal of civilian production units to remote areas for defense and other reasons. In many cases this dispersal entails increased costs for infra-structure, construction, and transportation which to some extent should be considered a portion of the real cost of Soviet defense. A more direct example is found in the recent build up of Soviet forces along the remote and climatically hostile border with China. Based in the relatively underdeveloped economic environment of the Soviet Far East, these units have required far more in support resources than equivalent units based to the west of Lake Baikal and the Urals, largely as a result of the adverse natural conditions of the region, the long distance from suppliers of goods and services, and the small scale

of regional demand for most items. The magnitude of this east-west cost differential depends upon a number of factors under examination, but a preliminary and conservative estimate is that the Soviet general purpose forces in East Asia cost about half again as much as their average counterpart elsewhere in the Soviet Union, and could easily cost twice as much.

A number of the foregoing remarks indicate areas in which the physical quantities of real resources directly or indirectly allocated to Soviet defense activities probably have been underestimated. Such underestimations apply not only to the ruble based calculation of the opportunity cost burden of defense, but also to the dollar based calculations which are used in the sizing comparisons with US defense expenditures, to be discussed in Section III, below. Indeed, since both the ruble and the dollar valued calculations are based upon the same estimate of the physical resources devoted to Soviet defense, any shortcomings in these physical estimates apply equally as criticisms to the burden and sizing analyses. There is one additional major methodological problem which suggests that the quantity of physical resources devoted to Soviet defense activities has been underestimated in relation to the corresponding resources devoted to US defense, but this will be treated more conveniently in the discussion of sizing.

There is a further point which is peculiar to the opportunity cost burden calculation: the assumed greater efficiency of the Soviet military production sector relative to the civil sector.

3. The Relative Efficiency of Soviet Military Production

Certain of the factors discussed above, and others, have led many analysts for some years to argue that the military production sector of the Soviet Union is highly efficient, both in relation to comparable US production and to the Soviet civilian production sector. This position has buttressed the conclusion that the opportunity cost of Soviet defense resources, calculated as a percentage of Soviet ruble GNP in a given year, was relatively small, the current CIA estimate being in the range of 6-8% of GNP. The presumption of high efficiency in military production relative to the US is expressed by the application of relatively low ruble-to-dollar ratios when the previously calculated dollar costs of Soviet military hardware are translated into ruble costs. The result is a lower ruble cost of Soviet military activities than would have been calculated had the military sector not been assumed so peculiarly efficient, and correspondingly higher ruble-to-dollar ratios used to translate dollar costs into ruble costs.

There may well be a number of allocation, incentive, and institutional factors in the Soviet Union which cause military production to be more efficient than Soviet civilian production; this point is not seriously in question. However, there is some evidence which suggests that the magnitude of that efficiency margin has been over-estimated, at least for some major hardware categories, and that, therefore, the ruble valuation placed upon the estimated physical quantities of resources absorbed by the Soviet military has been inappropriately low.

For example, in the past the CIA estimated the ruble cost of the basic ship portion (i.e., total ship less armaments and electronics) of major Soviet surface combatants by first estimating the dollar cost to produce these ships within the US. These dollar costs were then converted to rubles by applying a ruble-to-dollar ratio reflecting the estimated relative efficiency of Soviet and US shipbuilding. However, recent analysis has determined that the previously applied ruble-to-dollar ratios were too low, and that the actual ruble cost of the basic ship components was more than double the estimated amount. The direct implication of this new appraisal applies only to the ruble cost of Soviet major surface combatants. However, in general it supports the broader view of certain independent analysts who believe that the relative efficiency of Soviet military production (relative to both the Soviet civil sector and to US military production) has been over-estimated, and that therefore the ruble-to-dollar ratios applied to a wide range of Soviet hardware are likely to require upward revision.

Further evidence on the relative efficiency question is provided by recent information being appraised by the intelligence community. This information suggests that Soviet total expenditures for defense in several years were approximately double the US ruble estimates for those years. It should be noted that the information relates in part to certain categories of expenditures which have been explicitly excluded from the CIA estimates due to lack of sufficient information upon which to base estimates. However, the remaining difference is acknowledged to be too great to be explained by differences in coverage alone. The greatest part of that difference must be explained by some combination of real resource omissions from previous estimates, and inappropriately low ruble costing of those military activities which were included.

There is, then, some evidence that past official analyses have over-estimated the relative efficiency of Soviet military production, and thereby systematically underestimated the ruble value of the resources devoted to Soviet defense activity. In real terms this implies that, for any given allocation of physical resources to

defense, the Soviet opportunity cost has been larger than previously estimated.

These recent insights regarding Soviet efficiency support the preceding comments in suggesting that the resources devoted to defense activities in the Soviet Union are much more likely to account for 10 to 20 percent of Soviet GNP than the 6 to 8 percent indicated by past official analyses. It is clear, therefore, that we require improved analysis of the economic opportunity cost burden of defense. Indeed, the range of uncertainty as to what the actual level of this cost might be suggests that we should not rely upon a single measure. We need alternative and independent analyses which will provide checks upon improved official estimates of Soviet ruble spending for defense. For example, these could include manpower directly and indirectly involved in military programs, etc. We also need better analyses of the broader and more complex issue of how the opportunity cost burden of defense is perceived by the Soviet leadership.

C. The Perception Problem in the Burden Concept

The narrow economic opportunity cost concept is but one input to the burden issue, and is by itself inadequate to the essential point of the analysis. How heavy is the burden perceived to be by the nation's leaders? What pressures are they under to reduce the burden? How long can they continue to carry the burden?

With regard to the Soviet Union specifically, the economic opportunity cost of defense, even if accurately calculated, is only a preliminary input to such questions. What is critical is a better understanding of how that opportunity cost is perceived by the Soviet leadership and society. However united it may be to external view, Soviet officialdom comprises many leadership positions, each with a unique occupant and perspective, so what may be a cost to a certain individual, group, sector, or region may simultaneously be a benefit to another and even a larger cost to a third. To understand the burden of defense in any useful sense we need to know much more about how such conflicting and reinforcing views work themselves out in the Soviet system. The answer to this sort of question depends upon an understanding of the internal bureaucratic and organizational politics of the decision processes which determine the allocation of resources. This suggests that not only is it important to move toward more sophisticated opportunity cost measures, but also to try much more sophisticated analyses of the perception of that opportunity cost of defense. There may be widely shared goals for the non-defense sector that cannot be met. If that is

true, the perceived burden of defense may be increasing over time even though defense takes but a constant or declining share of GNP. Therefore, it is impossible to address the problem of the burden, or the Soviet perception of the burden, without knowing how strongly the Soviet leadership in general, or subgroups of it, are attached to some alternative goals that could be obtained by diverting resources from defense even if the efficiency of the shift of resources is low. Until much more progess is made in these broader dimensions of the burden issue, statements to the effect that the burden of defense upon the Soviets is great or small will not be persuasive.

III. Sizing Estimates

A. Summary of Major Points

Sizing analyses attempt to provide a measure of Soviet military activity which is comparable to US military activity as represented by US annual defense expenditures. To do so, the dollar costs are estimated of what US expenditures would be if the US pursued the same development, investment, and manpower programs as the Soviets and operated the resulting force as the Soviets do. The estimated dollar cost of Soviet military activity represents the magnitude of real resources allocated to the Soviet military when those resources are aggregated using the corresponding US dollar values as weights. Therefore, comparative sizing studies enhance our appreciation of the relative magnitude of the resources used as inputs to military forces in the two countries; they do not measure (nor claim to measure) the relative effectiveness or capabilities of those forces.

The methodology used to size the Soviet military effort begins with a detailed specification of the physical elements and activities of the Soviet forces as revealed by intelligence community observation and analysis. These physical dimensions are then dollar-costed and aggregated for comparison to US defense expenditures as obtained from official US budget documents. In the comparisons of military size, therefore, the Soviet and US data have been derived by significantly different methodologies: the Soviet data by US intelligence observation which cannot be exhaustive in its coverage of the details of Soviet military activities, and the US data by reference to official publications which are exhaustive of US defense outlays. Although the CIA does make major adjustments to the US data which improve the comparability between the two figures there are a number of factors which suggest that the observed and imputed physical dimensions of Soviet military activity are under-represented relative to their US counterparts.

Once the physical dimensions of the Soviet and US military efforts have been specified, there remains the question of how to aggregate the disparate physical elements of each nation's program to provide commensurable aggregates for comparison. There is no system for which a priori preference can be claimed. The Soviet program has in fact been aggregated using US dollar prices for a number of practical reasons. Soviet ruble prices in principle could have been used to aggregate both the Soviet and the US programs, but the empirical problems associated with an accurate ruble comparison may be intractable for US analysts.

Even within the dollar-price estimates of Soviet military activity there are a range of legitimate estimates which can be made. It is not a simple matter of aggregating the physical elements of the Soviet effort by using their estimated dollar procurement or unit prices. The resource costs which are functionally related to the observable elements of military activity (men, ships, aircraft, etc.) depend not only on the physical and performance characteristics of the elements, but also upon the military practices which determine how these physical elements are supported, deployed, maintained and operated. Such practices differ significantly between the US and the Soviet military, and the estimated dollar size of Soviet military activity can vary greatly depending upon what mix of these practices are assumed in the costing methodology. Of course, actual US defense expenditures reflect US military practices exclusively. The current CIA methodology used to dollar-cost Soviet activity, however, embodies a mix of US and Soviet practices which results in an estimated dollar cost of the Soviet defense program which is relatively low; low, that is, in relation to other estimates which would result from equally legitimate alternative assumptions regarding military practices.

For these and other reasons the concept of the size of a military program is complex and is to a degree inherently arbitrary. That complexity and its associated uncertainty suggests that the important policy issues to which sizing analyses are addressed would be better served by a variety of supplemental measures of relative size. These could be based upon ruble prices, alternative assumptions regarding military practices, or real magnitude comparisons of major systems procurements by the US and the Soviet Union.

But dollar sizing of Soviet military activity is a perfectly valid analytic process with important policy uses. I believe there are serious problems in the current estimates which, on balance, underestimate the extent of Soviet activity relative to US defense expenditures. Little confidence can be placed in the absolute size of the

Soviet effort as now estimated. However, the general trend between these estimates and US defense expenditures seems correct: in constant dollar terms, the annual allocation of resources to Soviet military activity has exceeded its US counterpart in every year since 1971, inclusive, and in calendar year 1974 this excess was at least 20 percent.

B. Methodological Conflict

1. Description

The US defense expenditures which are compared to the estimated dollar cost of Soviet military activity are taken from official US documents that presumably provide an exhaustive listing of US military spending. In contrast, the CIA process for estimating the dollar value of Soviet activity (and also its ruble value) begins with intelligence observation and analysis to develop a detailed inventory of the numbers and kinds of weapons and units that make up the Soviet armed forces. These physical elements of the Soviet force, and the other material support and activities which can be imputed to them, are dollar costed by a variety of means to arrive at the estimated dollar aggregate. In principle, therefore, the US expenditure data is exhaustive, while the estimated Soviet data can only seek to be so. In fact, the CIA excludes certain significant categories of US expenditures (for example, those for military aid and civil defense) where the intelligence base is insufficient to permit a reasonable estimate of Soviet counterparts. However, there remain a number of areas in which the current estimates may under-represent the physical resource base from which the dollar estimates of Soviet military activity are derived.

2. Exclusions from the Soviet Base

As cited above in the burden section there are several areas where significant resource inputs seem to be omitted from the Soviet estimate, including resources provided by non-defense Ministries in support of military activity. Some of these contributions are captured, but the amount of civil-military interaction is so extensive in the Soviet Union that it is doubtful that all of these have been adequately reflected. The additional resource costs entailed by dispersing civilian oriented production units for national defense purposes stands as another relevant but conceptually difficult area. We have also argued that the resources required for the Soviet buildup along the Chinese border easily may be half again as much as indicated within the current estimates. The cost factors for these forces have not adequately reflected the

location and climactic conditions which suggest that forces stationed in the Far East are significantly more expensive in real terms than their counterparts in the western regions of the Soviet Union.

Past estimates of Soviet defense manpower contain serious uncertainties, particularly with regard to civilian and military personnel in command and general support activities. A recent intelligence community review focusing on these areas indicates that, when all forces including the militarized security forces are considered, past estimates have understated the military personnel involved by approximately 600,000. Although this correction will presumably be incorporated in forthcoming sizing and burden analyses, the omission from previous studies illustrates the type of bias which the contrast in basic methodologies makes probable.

3. Non-defense Inclusions in the US Data

Whereas the dollar costs accorded to the Soviets are those related to observed military activities, the US documentary data includes DOD expenditures which are not related to military capability, or which make only a limited and indirect contribution. Many of these are associated with certain manpower policies. It is clear, for example, that retiree pensions and dependent and retiree health, education and other benefits do not contribute significantly or at all to current military capability. Soviet policies in these areas entail significantly lower dollar costs than the corresponding US programs, and this contrast creates difficulties in interpreting the sizing comparisons. These problems will be discussed in more detail in Section D2, below.

There are a number of US DOD expenditures which are explicitely in support of US non-defense values, such as expenditures for environmental, conservation, and equal opportunity programs, and civilian skill transition training. Such expenditures may not be individually large, but in so far as there are Soviet counterparts they probably are not included in the estimates of Soviet dollar defense costs which are compared to the US data. Of course, there are activities by the Soviet forces which are directed toward principally civilian programs in Soviet society. Such activities are known as "Sheftsvo" and include, for example, military troops and equipment assisting in crop harvesting and certain construction projects. Not all Sheftsvo activities are totally civil oriented, however, as troop involvement in the construction of the Baikal-Amur-Magistral railroad near the China border illustrates. Nonetheless,

a more adequate comparative sizing analysis would attempt to eliminate such civilian oriented activities from both the US and the Soviet data.

4. Cost Estimating Relations and the Complexity of Soviet Military Hardware

The dollar costs of most Soviet major weapons--aircraft, missiles, and ships--are estimated through the use of cost estimating relationships (CER's) which represent what it would cost in the US to produce the physical and performance characteristics of the Soviet weaponry. During most of the post-WWII period Soviet weapon development appeared to incorporate technology which was relatively unsophisticated compared to US counterparts. Soviet design changes were viewed as evolutionary, drawing heavily upon on-the-shelf components and often involving little more than modifications of existing systems. As a result, Soviet weapons have been described as "simple, rugged, and easy to maintain", and as cheaper in dollar terms to develop, produce and maintain than their US counterparts. Indeed, when actual Soviet equipment was attained, in some cases it was less sophisticated than had been assumed and therefore cost less in dollar terms than had been estimated.

This presumption of relatively unsophisticated weaponry may no longer be justified. Recent analyses indicate that the major Soviet land armaments and tactical aircraft introduced since 1965 are substantially more complex than initially estimated, and substantially more complex than the weapons they have replaced. There are some cases in which the increased complexity and associated increase in capability entail lower dollar costs. But in most cases the unit production costs for the present generation of Soviet land arms are substantially higher than for older equipment performing similar missions. Some new weapons--such as the ZSU 23-4 anti-aircraft gun and the BMP infantry combat vehicle--are far more costly in dollars than their closest US counterparts.

It is not known how widespread may be this trend toward increased sophistication in Soviet weaponry. Its cost implications will extend beyond procurement costs to the training and maintenance structures required to support more advanced weaponry, and the effects in these areas are also uncertain. But it is certain that we have underestimated the complexity and capability of specific Soviet weapons. As a result, the CER's used to determine the dollar costs of these systems have resulted in significant underestimations.

C. Aggregation Problems: Dollars, Rubles, and "Bias"

1. The Concept of Size

The concept of the size of a military program is inherently a matter of definition. In the dollar-cost estimates of the size of Soviet military activity, the structure of US prices has been

used as the common unit of measure with which the disparate physical elements of Soviet activity are aggregated. But, in principle, Soviet ruble prices could be applied to the physical elements of both the US and the Soviet military for comparative sizing purposes. For a number of practical reasons the dollar base has been used: the US audience is more familiar with aggregates expressed in dollar terms; we know much more about the structure of US prices than about that of Soviet ruble prices; and the use of dollars requires that only one military activity (the Soviet) needs to be aggregated, whereas the ruble base would require that two aggregations be done (Soviet and US). A ruble based comparison would face such extreme practical problems that the degree of uncertainty associated with the result would be large in relations to that felt regarding the existing dollar comparisons. Given the magnitude of these problems it seems more fruitful to concentrate upon improving the dollar based comparison before devoting the extensive manpower required to produce reliable ruble based comparisons.

It is true that the relative size of the two military activities as portrayed by a ruble based comparison would probably differ from that indicated by the dollar comparison; indeed, even the time trend in relative size may differ. This is an inescapable problem with index numbers in general, and derives in this specific case from two empirical factors: first, that the forces of the Soviet Union and the United States are composed of military elements in different proportions; and, second, that the relative dollar prices of these elements differ from their relative ruble prices. One would expect as a general consequence that the ratio of Soviet military activity to US military activity would be higher when the indexes are based on dollar prices than when they are based on ruble prices.

Although the trend in a ruble based sizing comparison in principle can differ from that shown in a dollar based comparison, such a contrast is not necessary. Moreover, preliminary and rough comparisons in ruble terms reveal the same general relative trend as the dollar based comparisons.

More importantly, such differences as could appear would not necessarily be significant for the policy issues to which the comparisons of military size relate. But if the two approaches should have policy implications which conflict, the reaction should not be one which attempts to discredit sizing comparisons as an analytic approach, nor, necessarily, any of the particular indexes involved.

After all, any index is a short-hand aggregate representation of a number of disparate elements which are considered too numerous and too complex in their interrelationships to be considered individually as anormal rule. In certain cases the aggregation of an index number or index comparison may obscure the underlying factors relevant to a particular question. In such cases, as in cases of conflict between indexes in general, alternative analyses should be available to aid in interpretation. Therefore, although comparative sizing analyses in ruble terms would be useful if they can be done with adequate reliability, we also need further supplementary measures of size. Especially useful would be comparative real magnitude time series of US and Soviet annual procurements of major weapon systems (missiles, ships, aircraft, land armaments; each broken into significant functional categories). If such measures were presented within the sizing documents, the interpretation of the value-aggregated data would be enhanced.

D. Dichotomies in Military Practices and the Concept of Military "Size"

1. Statement of Issue

The fact that the concept of size is open to various definitions presents a range of complexities even after accepting a particular value structure to use as the aggregation measure. In particular, the dollar sizing of the Soviet force is not a simple matter of using straight forward or obvious dollar procurement costs to aggregate the various physical elements involved. Within any military establishment, the costs which are functionally related to the quantity of a particular military resource go far beyond the procurement costs of that resource, and are determined by the military practices which define how the resource is supported, deployed, maintained, trained or operated. Such practices are often significantly different between the US and the Soviet military, and the dollar size estimated for Soviet defense activity may vary widely depending upon whether the US or Soviet practices, or some mix of the two, are assumed in the costing methodology.

It might be assumed that the appropriate practices to assume for costing the Soviet force are those followed by the Soviets; after all, the Soviet sizing is in some sense an attempt to represent in a manner comparable to US data the real resources which the Soviets actually allocate to their military, and these will be determined by the way the Soviets in fact use their forces. But the issue may not be so clear. It will help to clarify the point in question by referring to two descriptions of the methodology and interpretation of the Agency's dollar cost of the Soviet force.

"Estimated dollar costs of the Soviet defense effort are estimates of what it would cost the US to purchase the same military equipment and supplies; pay the same number of people; and carry on the same types of RDT&E (research, development, testing, and evaluation) and operations and maintenance programs as the Soviets. Conceptually, the Soviet defense program in this context can best be considered as an alternative US defense program."

"Estimated dollar costs of the Soviet defense effort show what US expenditures would be if the US pursued the same development, investment, and manpower programs as the Soviets and operated the resulting forces as the Soviets do. In essence, the dollar estimates present the Soviet military force as an alternative US force equipped with Soviet weapons and manned, operated, maintained, and improved on the basis of Soviet practices and priority decisions."

Although care should be taken in the exegesis of such summary quotes, the implication of these statements is that Soviet practices are the basis of the dollar costing methodology. But is this consistently the case? How are the dollar purchase prices of Soviet equipment determined? How is it determined what the United States would have to pay to raise the same number of military personnel as the Soviets (active duty? reserves? civilians?)?

In the case of military hardware the general procedure is to develop, on the basis of the equipments' particular physical and performance characteristics, cost estimating relationships (CERs) indicating what it would cost US firms to produce that Soviet equipment in the US. Here, clearly, US practices are embedded in the estimating process. These involved in the CERs are US industrial practices, not military, but their inclusion causes the resulting estimate to diverge from a representation of the resources which the Soviets actually expend on military activity. The point here is that the actual estimation process contains a mix of Soviet and US practices which leaves the interpretation of the final dollar cost estimate of Soviet military activity unclear. A more specific--and perhaps more significant--example of this mixing of US and Soviet practices, and the resulting ambiguity of the estimates, will be provided in the following section.

However, none of these remarks should be taken as arguing that the CIA estimates are "wrong" due to their assumption of a mix of US and Soviet practices. Given the essentially defined nature of the "size" of military establishments, the CIA methodology can and does provide useful insights into the status and trends of the US-Soviet military competition. But the following objections can be made. First, the specific mix of assumptions embodied in the current CIA estimates is only one of a set of legitimate assumption mixes. The documents which contain these estimates present them without adequate acknowledgement of the ambiguity of the "size" concept, and without any indication of the differences in magnitude of the Soviet estimate which would follow from certain specific alternative practice assumptions. Second, as will be illustrated below, the particular mix of US and Soviet practices assumed in the current estimates tend, on balance, to provide a dollar cost estimate for Soviet military activity which is relatively low; low, that is, in relation to many legitimate alternative estimates which could be made. And, third, that the current Soviet estimate under-represents relative to US defense expenditure what the US would have to spend in order to replicate within the existing US context the physical dimensions and operational capabilities of the Soviet military.

2. Dollar Costing Soviet Manpower

The procedures used to dollar cost Soviet manpower provide a striking example of how US and Soviet military practices are mixed within current estimates, with significant consequence for the resulting Soviet figure. Reference to the first quotation, above, indicates that the estimate represents "what it would cost the US...to pay the same number of people...as the Soviets." But how inclusive is this concept of "pay"? How inclusive should it be to achieve a dollar estimate of the Soviet force which is comparable to US defense expenditures for a variety of purposes?

These questions do not have clear-cut answers. Is the sizing estimate to be interpreted as a dollar price aggregation of the actual resources allocated to Soviet defense? Or is it to be interpreted as the dollar cost required to replicate the physical elements and operational capabilities of the Soviet force in the United States? Both interpretations can be found in the literature on the subject; the former seems most consistent with interpretations of international economic comparisons in general, the latter most consistent with the official interpretation as represented by the quotations on page 18. Both are reasonable interpretations. Unfortunately they seem to imply conflicting assumptions regarding the particular mix of US and Soviet practices which should form the basis of the Soviet dollar estimate. The conflict can be illustrated by the present methodology used to estimate the dollar costs

associated with Soviet military manpower.

The CIA methodology begins with the calculation of US per man pay factors for each US service by dividing total pay, allowance, and food expenditures for each service by its respective total manpower. The factors are then applied to the manning levels of the corresponding Soviet services to determine the dollar cost of Soviet military personnel. As a preliminary point it can be noted that already a selection has been made between US and Soviet practices, i.e., the assumption of the US rank structure and its associated relative pay scale. In essence the assumption transforms the actual Soviet proportions between officers, NCO's, and enlisted personnel into the different proportions of the US system. Given that the choice of one rank structure rather than the other will have an influence on the resulting dollar size estimated for the Soviets one can reasonably ask why the particular choice was made. Are the differing rank proportions and salary differentials thought to be determinants of military capability, more or less consciously selected in relation to the mission emphases of the two military establishments? Or are they unrelated to capability, and more the product of the social and economic environments in which the two systems are embedded? Even if the answers to these questions are ambiguous they seem to be important considerations for the interpretation of the sizing estimates. Their relevance can be illustrated by exploring further the concept of the dollar cost of Soviet manpower.

The manpower costs reflected by the manning cost factors discussed above are only a limited portion of the costs which are functionally related to the quantity of manpower in any military system. Consider only an illustrative listing of other activities in which the resources expended are determined wholly, principally, or in perceptible part by manpower levels: training, personal equipment, transportation, professional education, active duty health care; dependent health care, overseas services for dependents (housing, transportation, education), retiree pension, health, and other benefits. In estimating the dollar cost of these activities for the Soviets, the CIA assumes Soviet practices, reflecting in dollar terms the actual resources which the Soviets allocate in those areas.

For the activities listed before the semi-colon this "Sovietization" seems appropriate. Such activities presumably are determinants of the military quality of personnel. The differences between US and Soviet practices in such areas can be assumed to reflect the different mission emphases of the two forces, and the different tradeoffs

between quality and quantity which each side has made in pursuing military capability, however defined. For either interpretation of the sizing analyses it seems appropriate that such mission and capability related activities should be estimated on the basis of Soviet practices.

But the same logic does not apply to those activities which follow the semi-colon. Services and other benefits accorded dependents and retirees in either military system have no relation--or only the most tangential relation--to military capability or mission emphasis. They constitute a part of the real wage of military personnel. Differences in these payments between the US and Soviet military are rather to be explained by the wide range of social and economic characteristics which define the different national contexts in which the military systems are embedded; for example, the contrast in the general standard of living and the corresponding difference between the real wage needed to induce people into military service as opposed to that required to sustain a largely conscript force. Yet US practices in such areas influence the functional relation between the quantity of military personnel raised in the US and the magnitude of manpower related costs. In essence, a US military person enters US defense expenditures with a dollar weight determined not only by those practices which relate to military capability, but also by those which reflect the non-defense characteristics of US society. Soviet practices which determine the Soviet counterparts of these dependent and retiree programs cost less in dollar terms per man than do the US programs. Consequently, to assume, as the CIA does, Soviet practices in such areas, is to underweight the dollar cost of Soviet manpower relative to US manpower, and to do so in a way not representative of quality differentials. The resulting dollar size of Soviet military activity therefore underestimates what it would cost to raise a Soviet manpower level within the US system.

Let me summarize the preceding argument. First, in many cases unrelated to capability, Soviet practices provides fewer benefits and absorbs fewer resources than the corresponding US practices, and therefore result in a lower dollar estimate than if US practices were assumed. Second, if the Soviet manpower level was raised within the existing US system, the higher costs associated with US practices would be required. Third, the cited expense categories have only the most indirect--if any--relation to military capability. Consequently, the assumption of these Soviet as opposed to US practices can hardly be justified as reflecting the quality/quantity trade-offs which other practice dichotomies may represent. And, fourth, US military personnel are entered into US defense expenditures with

dollar weights which reflect exhaustively the full range of US manpower practices. Therefore, to dollar cost Soviet personnel by in part reflecting Soviet practices with lower dollar costs than the corresponding US practices is to under-represent the quantity of Soviet manpower relative to the quantity of US manpower reflected in US defense expenditures.

In short, the particular mix of US and Soviet manpower practice assumptions used in the current estimate underestimates (1) the quantity of Soviet military manpower relative to US military manpower, or, what is an alternative interpretation, (2) the dollar cost required to raise in the United States a military manpower level equal to that of the present Soviet force.

3. Response to the Practice Dichotomy Issue

It was said earlier that sizing analyses do not measure military capability, and this point is maintained. However, they are one type of input relevant to judging the adequacy of US defense activities, and this question does require complex considerations of capability. Although exceptions are probable, it seems intuitively sound to argue that the relation between "size" and capability is positive. That is, most persons exposed to the sizing analysis, on observing an increase, say, in US defense expenditures relative to the estimated dollar size of Soviet activity, would view this change as prima facie evidence that the US has increased its capability relative to the Soviet Union. Given this tendancy to associate positively changes in "size" with changes in capability, it is important that the estimate of the size of Soviet military activity avoid the bias caused by the use Soviet practice assumptions which, while unrelated to capability, entail resource requirements with different dollar valuation than the corresponding US practices. Such "Sovietization" will distort what relevance to capability, and to the adequacy of US defense efforts, the sizing estimates reasonably may be interpreted to possess.

We have discussed at length one example of this bias. Others are pervasive. Many are related to personnel factors, such as the creature comforts considered necessary for shipboard personnel which influence the differences between internal and external configurations of US and Soviet naval vessels. Others derive from other societal influences, such as those which may constrain practicable US mobile ICBM concepts to a limited and more dollar costly subset of the range of alternatives open to the Soviet Union. Although such influences do not bear all in the same direction, the differences between the US and Soviet society in

general suggest that, on balance, the effect is to underestimate the extent of Soviet military activity relative to US defense expenditures.

The issue is complex in concept and its treatment difficult in practice. Yet there are major examples, such as that relating to personnel costs, where alternative sizing calculations can usefully be made: one "Sovietized" as in existing estimates, another (or others) employing a mix of US and Soviet practice assumptions selected to eliminate those practice dichotomies which do not bear on military capability. Consistent with a theme which has run throughout this paper, the policy issue to which sizing analyses are directed would be better served if several complimentary estimates of Soviet activity were available and appropriately documented.

E. Appraisal

The foregoing remarks have outlined a number of areas where there appear to be major conceptual or empirical shortcomings in the existing dollar cost estimates of Soviet military activity. On balance, the current estimates tend to underestimate the size of the Soviet activity relative to US defense expenditures. Little confidence is held, therefore, in the absolute magnitude of the Soviet dollar figure specified by the CIA documents.

However, the analytic uncertainties which have been discussed above do not appear to negate the basic relative trend between the two forces which is indicated by the comparative dollar cost time series. In real terms the Soviet defense effort has undergone a steady and significant expansion since at least 1964, whereas the US effort has declined from 1968 through 1973. In constant dollar terms, the annual allocation of resources to Soviet military activity has exceeded its counterpart in the United States in every year since 1971, inclusive, and in calendar year 1974 exceeded US defense expenditures by at least 20 percent.

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