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# ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA

GOVERNMENT

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## HEARING BEFORE THE SUBCOMMITTEE ON PRIORITIES AND ECONOMY IN GOVERNMENT OF THE JOINT ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES NINETY-THIRD CONGRESS

SECOND SESSION

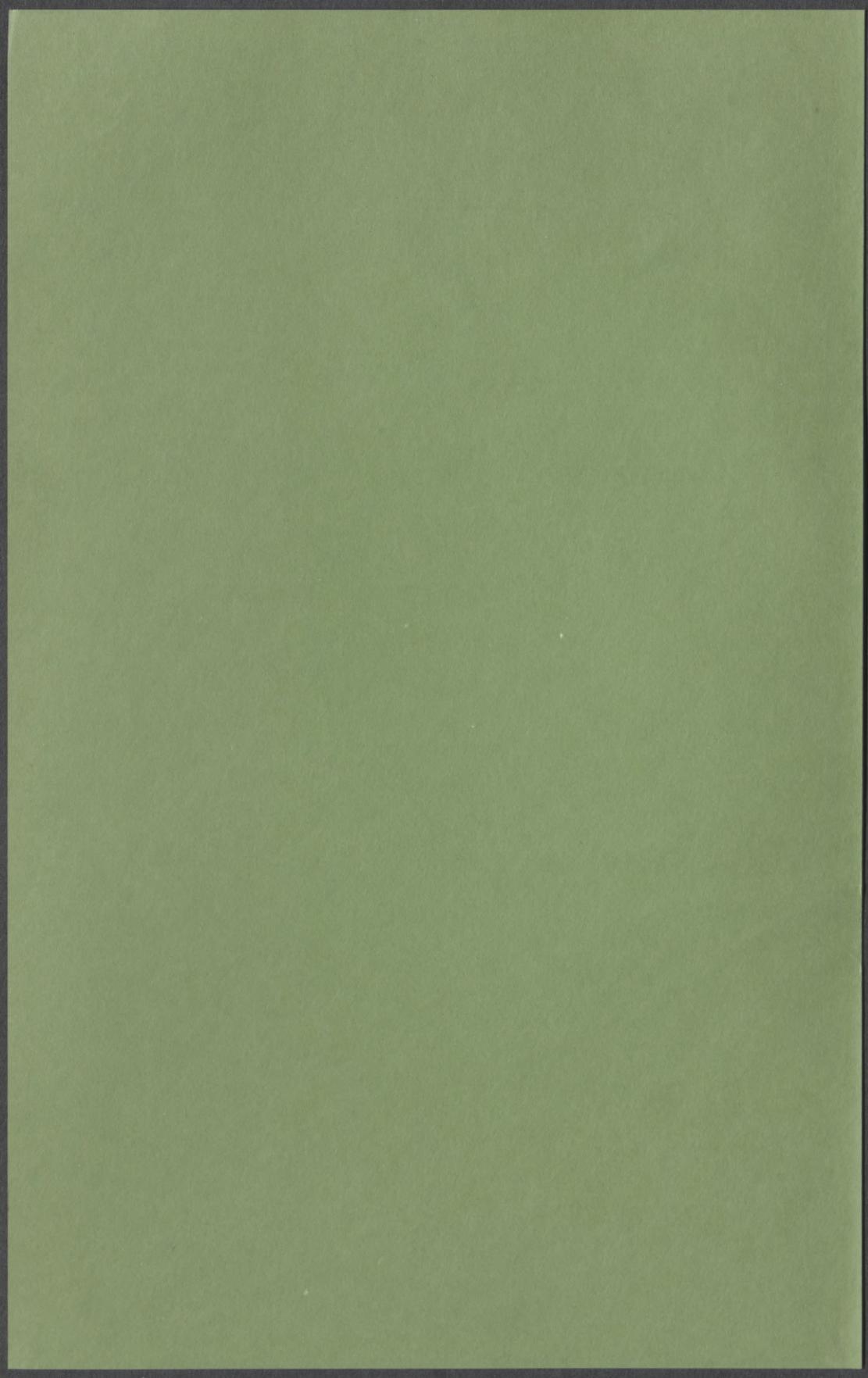
EXECUTIVE SESSION

APRIL 12, 1974

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# ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA

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CONGRESS OF THE UNITED STATES  
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SECOND SESSION

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EXECUTIVE SESSION

APRIL 12, 1974

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(II)

# CONTENTS

## WITNESSES AND STATEMENTS

FRIDAY, APRIL 12, 1974

Proxmire, Hon. William, chairman of the Subcommittee on Priorities and Economy in Government: Opening statement.....	Page 1
Colby, Hon. William E., Director of Central Intelligence, CIA, accompanied by Douglas B. Diamond, Office of Economic Research; John A. Paisley, Office of Strategic Research; Arthur G. Ashbrook, Jr., Office of Economic Research; William B. Newton, NIO staff; and George L. Cary, legislative counsel .....	2

## SUBMISSIONS FOR THE RECORD

FRIDAY, APRIL 12, 1974

Colby, Hon. William E., et al.:	
Response to Chairman Proxmire's request to supply for the record a breakdown showing the comparisons of United States and Soviet military operating costs.....	33
Prepared statement.....	49
Chart entitled "U.S., U.S.S.R. and China: Estimated Military Procurement in 1973".....	80

## POINTS OF INTEREST

FRIDAY, APRIL 12, 1974

Colby, Hon. William E., et al.:	
Prepared statement:	
Introduction.....	49
Sources of information on the Soviet economy.....	49
The Soviet economy.....	50
Overview.....	50
Industry.....	55
Energy.....	58
Agriculture.....	60
The leadership's attitude.....	61
The need for technology.....	62
The Soviets face their problems.....	63
Prospects.....	66
Military expenditures.....	67
The Chinese economy.....	70
Overall performance.....	70
Performance by sector.....	72
Prospects—Mid and long range.....	75
Expenditures for military programs.....	76
Proxmire, Hon. William—Colloquy and interrogation:	
Colby, Hon. William E., et al.:	
Soviet economy:	
Economic intelligence and economic analysis.....	3
U.S.S.R. published data.....	4
U.S.S.R. world's second largest economic power.....	4
Growth rates.....	5
Large share of GNP in investment.....	5
Soviet pricing system.....	6

## Proxmire, Hon. William—Colloquy and interrogation—Continued

## Colby, Hon. William E., et al.—Continued

## Soviet economy—Continued

	Page
United States and Soviet productivity compared.....	6
Source of data on fixed investment.....	8
United States and Soviet consumption compared.....	8
Health services.....	8
Durables.....	9
Sources of data.....	9
Food.....	9
Industrial production.....	9
Low technology.....	10
Oil.....	10
Cement.....	10
Electronics.....	10
Computers.....	10
Energy resources.....	11
Metals and minerals.....	11
United States and Soviet energy resources compared.....	11
Soviet exaggerations.....	12
Oil.....	13
Agriculture.....	13
Soviet Union far behind United States.....	14
Source of data.....	14
Confidence in data.....	15
Growth of GNP.....	15
Productivity.....	16
Managerial problems.....	16
China compared.....	17
Lack of Chinese statistics.....	17
United States and Soviet productivity compared.....	18
Technological gap.....	18
Soviet imports of military technology.....	19
Effects of détente.....	20
Agriculture.....	20
Purchase of U.S. grains.....	21
Trade with the West.....	21
Prospects for the Soviet economy.....	21
Effects of military spending on growth.....	21
Economic ties with the West.....	22
Negotiations with Japan over coal project.....	22
Soviet economic relations with West Germany and France.....	23
Soviet possibilities for increased trade improved.....	24
Long-term problem of managing a complex economy.....	24
Soviet military programs.....	25
Spending growth rate.....	25
Definition of military.....	25
Organization of Soviet military forces.....	26
Ground forces.....	26
Sources of data.....	26
CIA cost estimates.....	27
Expenditures for military investment.....	27
Expenditures for space.....	28
Defense outlays estimated to increase in 1974.....	29
Missile production.....	29
Military R. & D.....	29
Estimates of dollar cost of Soviet defense.....	30
Weaknesses in estimates.....	30
Approach to health costs compared.....	30
Allocations to meet U.S. threat.....	30
Dollar evaluations.....	31
Structure of defense efforts.....	31
Military manpower.....	31
Operations and maintenance costs.....	32
Military R. & D.....	33
Net assessment.....	33
United States and Soviet military R. & D. compared.....	34

## Proxmire, Hon. William—Colloquy and interrogation—Continued

Colby, Hon. William E., et al.—Continued

## Soviet economy—Continued

	Page
Soviet imports of military technology.....	36
Military R. & D.....	37
Soviets trying to catch up to United States.....	37
Estimates of United States and Soviet spacespending compared.....	37
Procurement.....	39
Operations and maintenance.....	39
Uncertainty of Soviet defense spending estimates.....	79
Chinese economy:	
Chinese economic growth.....	39
Source of data.....	39
Industrial production.....	40
Slowdown in military expenditures.....	40
Agriculture.....	41
Foreign trade.....	41
Energy resources.....	41
Metals.....	42
Textiles.....	42
Machine tools.....	42
Transportation.....	42
Foreign trade.....	42
Trade with Soviet Union and United States compared.....	43
Prospects of growth.....	43
Foreign trade.....	44
Relative size of Chinese economy.....	45
China's defense program.....	46
Lack of published data.....	46
Defense operating costs.....	46
Procurement costs.....	46
Relative capability with that of the United States or the Soviet Union.....	46
Procurement trends.....	47
Trade-off between military and economic development.....	47
Procurement trends.....	48
Defense outlays.....	48
Space program.....	78



# ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA

FRIDAY, APRIL 12, 1974

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, 10:10 a.m., in room S-407, the Capitol, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire and Schweiker.

Also present: Richard F. Kaufman, general counsel; and Ronald Tammen, legislative assistant to Senator Proxmire.

## OPENING STATEMENT OF CHAIRMAN PROXMIRE

Chairman PROXMIRE. The subcommittee will come to order. We welcome this morning the Director of Central Intelligence, Mr. William Colby. The subcommittee wishes to express its appreciation to the openness shown by the Director as demonstrated by his appearance here today and his willingness to encourage the exchange of information between the Agency and this subcommittee.

As requested by Mr. Colby, this hearing will be in executive session in order to have a free and open exchange of views, unlimited by the need to separate classified from unclassified information.

Mr. Colby has agreed to quickly review the transcript of this session and sanitize everything he can within the limits of national security for public release in accordance with our long standing tradition for providing economic data to Congress and the American people.

Let me add at this point, Mr. Colby, that I hope you will make every possible effort to release as much of this material as possible. Our committee has an obligation to the rest of the Congress to provide economic data and analysis of high quality. As a matter of fact, this committee has no other purpose except to report to the other committees of Congress and to the Members of Congress on our economic policies. As you know, we cannot recommend legislation, we cannot amend legislation. Our function really is a fact-finding function and a reporting function, so that if we simply have a meeting and nothing comes out of it, we waste your time and our time and serve no useful purpose.

Mr. COLBY. I think we will be able to declassify a substantial amount of this, Mr. Chairman.

Chairman PROXMIRE. Very good.

The CIA is in the unique position of being able to supply us with many of the answers we are seeking. You have a reputation for unbiased analysis, of which you are proud, and properly so. It seems particularly important, therefore, that you make a special effort to declassify the economic, budgetary, and military information to be discussed at the hearing. While I fully understand the need for classified information, in some cases there may be a higher responsibility. We cannot make the all-important decisions in Congress on the military budget, on the domestic priorities without accurate, up-to-date information.

Therefore, I call upon you to keep this in mind and find a way to make your data public.

I might just stress one other point. It seems to me that it is a mistake to feel that we cannot make any more information public than the Soviet Union. We have an open society; they have a closed society. They have strength in a closed society; they can conceal information. But they have great weaknesses, too, because they cannot have the degree of criticism and evaluation by the public and by any number of interested people because they do have a closed society. And in my view they do not correct their mistakes as readily as an open society does.

The subcommittee agrees to confine its questioning to substantive issues rather than to the specific sources and methods of the intelligence community. That is not our purpose, to get anything about how the CIA functions at all, and we will not ask about that. If we stray off the line in any way, of course, you are perfectly correct in not replying.

The subject of today's hearings is the comparison of the economic strength of the Soviet Union, the People's Republic of China, and the United States, and specifically, the relative allocation of resources by sector.

Mr. Colby, I have a list of the men in your Agency, and you graciously introduced me to them, who are present today.

Would you identify them and then proceed with your opening remarks?

Mr. COLBY. Thank you, Mr. Chairman.

**STATEMENT OF HON. WILLIAM E. COLBY, DIRECTOR OF CENTRAL INTELLIGENCE, CIA, ACCOMPANIED BY DOUGLAS B. DIAMOND, OFFICE OF ECONOMIC RESEARCH; JOHN A. PAISLEY, OFFICE OF STRATEGIC RESEARCH; ARTHUR G. ASHBROOK, JR., OFFICE OF ECONOMIC RESEARCH; WILLIAM B. NEWTON, NIO STAFF; AND GEORGE L. CARY, LEGISLATIVE COUNSEL**

Mr. COLBY. I am accompanied today, Mr. Chairman, by Mr. Cary, our Legislative Counsel; Mr. John Paisley, of our Office of Strategic Research; and two gentlemen from our Office of Economic Research, Mr. Douglas Diamond and Mr. Arthur Ashbrook. Mr. Newton is with me to help on this presentation.

Mr. Chairman, it is a pleasure to be here this morning. As you requested in your letter inviting me to appear, I will discuss the economies of the Soviet Union and the People's Republic of China. I will make comparisons with the United States economy where these are meaningful, or help to put the economic performance of the other two powers into perspective with the use of charts.<sup>1</sup>

In separate sections, I will deal with the commitment of resources to military and space functions, and describe how we arrive at our estimates of Soviet and Chinese expenditures in these areas.

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

Chairman PROXMIRE. Do you have a copy of the prepared statement, or do I have one here?

Mr. COLBY. Well, I just think I finished it overnight.

Chairman PROXMIRE. Well, if you want to distribute it to us, fine, that is quite all right.

#### ECONOMIC INTELLIGENCE AND ECONOMIC ANALYSIS

Mr. COLBY. Thank you, Mr. Chairman. Before moving into substantive matters, I would like to say a few words about economic intelligence, and its relationship to open and unclassified economic reporting and analysis.

CIA started economic intelligence to help measure the strategic strength of the U.S.S.R. and China. It built a corps of economic analysts for this purpose.

As the importance of foreign economic developments for the U.S. economy and the U.S. Government policy has grown, demands increased on CIA and this well equipped analyst corps for intelligence support on other parts of the world.

The National Security Council, the Council for International Economic Policy, the Departments of State and Treasury, and other Departments and Executive Staffs frequently request information, analyses, and estimates on foreign economic developments from CIA.

Intelligence support to these policymakers requires an integrated view of political, military, and economic events. Even when the events in question are mainly economic, they often impact on U.S. security as well as economic interests, and must be looked at in the overall context.

In the past 6 months, for example, information concerning economic threats to our access to key natural resources, such as petroleum, have taken on increasing importance.

To produce such reports, CIA has the unique capability to incorporate into its analyses economic information which can only be obtained through highly sensitive collection programs.

This is especially true of information on the intentions and negotiating strategies of foreign officials. Senior U.S. policymakers and negotiators have found such information invaluable on critical international trade, finance, and energy issues that impact directly on U.S. national security and U.S. political and economic objectives.

<sup>1</sup> The charts used throughout Mr. Colby's statement have been footnoted at point of reference as to their respective page and may be found in his prepared statement.

Classified collection programs are also essential to economic intelligence on denied areas. In the analysis of economic activities highly classified sources help to substantiate the analysis and conclusions.

[Deleted.]

CIA's economic intelligence production is normally classified because it includes information from classified sources. However, the ultimate analyses or general conclusions sometimes do not need to be classified.

Such unclassified products are from time to time made available to scholars and Government components outside the intelligence community. As you are aware, CIA economic intelligence analysts have contributed studies to the almost annual issuance on the Soviet or Chinese economies put out by this committee, the most recent of which is titled "Soviet Economic Prospects for the Seventies," dated June 27 of last year.

The transcript of this hearing will be carefully reviewed to declassify any part which would not reveal sensitive intelligence sources and methods.

#### U.S.S.R. PUBLISHED DATA

[Deleted.] Each year the U.S.S.R. publishes a wealth of information in an official economic handbook that is similar to, although much less inclusive than the Statistical Abstract of the United States.

Additional data appear in specialized statistical handbooks on trade, industry, consumer welfare, labor, and agriculture. Population censuses are also published at irregular intervals. Finally, much useful information is gleaned from books, journals, newspapers, radio broadcasts, speeches, and the like.

We feel that the data on physical quantities are generally reliable. Unfortunately, official indexes of industrial production, consumption, prices, and economic growth incorporate considerable bias. Moreover, while much economic data is released, vast areas of relative silence remain.

Defense-related producing sectors are conspicuous in this regard, following long-standing Russian tradition. Money and banking data are also scarcely reported. A third bothersome area concerns the Soviet balance of international payments. Ample data on commodity trade have come available in the last decade, but Soviet international financial relations are still unreported.

In constructing estimates of the Soviet economy our analysts carefully examine the Soviet data, testing, verifying, adjusting in some cases to make them comparable with Western concepts, and making independent estimates where necessary.

[Deleted.]

Although our perception of some aspects of the Soviet economy remains less certain than we would like, in general we think we have a good understanding of their economic strengths and weaknesses and their position vis-a-vis the United States.

#### U.S.S.R. WORLD'S SECOND LARGEST ECONOMIC POWER

Mr. Chairman, the Soviet Union has become the world's second largest economic power. It has achieved this status by a longstanding

stress on industrial development. The country now has a gross national product equivalent to \$660 billion, slightly more than half that of the United States.<sup>1</sup>

Senator PROXMIRE. Can we have copies of the charts for the record?

Mr. COLBY. We will make them available with the prepared statement, Mr. Chairman.

#### GROWTH RATES

Soviet economic growth was especially rapid in the 1950's, as the nation recovered from wartime devastation. The pace gradually slowed after 1958, and since 1970, the rate of growth has been lower than in the United States. In absolute terms, the gap between the United States and Soviet economies has increased in recent years.

Chairman PROXMIRE. Is there any period when the absolute gap—I realize they have been gaining in proportionate terms, but was there any period when they were gaining in absolute terms?

Mr. DIAMOND. Well, between 1969 and 1970, there was a small decline in the absolute gap.

Chairman PROXMIRE. I see, that line.

Mr. COLBY. There was an increase in the absolute gap from 1960 to 1969. Then the gap went down and came up.

Mr. DIAMOND. It went down and came up again.

Mr. COLBY. That is a U.S. gain, is it not?

Mr. DIAMOND. Yes, sir.

Mr. COLBY. In other words, from the Soviet point of view, they are losing when this goes up. When it goes down, they are gaining.

Chairman PROXMIRE. We had a recession, of course, in 1970-71, and that explains part of that. I am a little surprised at the 1969 to 1970 figure. They must have had quite a spurt for some reason.

Mr. DIAMOND. 1970 was a record agricultural year. It was a large jump over 1969.

Chairman PROXMIRE. Very good.

#### LARGE SHARE OF GNP IN INVESTMENT

Mr. COLBY. The major support for Soviet economic growth has been the leadership's willingness to devote increasing shares of national output to investment.<sup>2</sup>

For instance, the share of GNP devoted to investment in new buildings and equipment has grown steadily since the 1950's. The U.S.S.R. now spends over one-fourth of its national product on new buildings and equipment, as opposed to less than one-fifth in the United States.

This policy of achieving economic growth by favoring investment has forced the Soviet population to accept a smaller share of the national product than its U.S. counterpart.

Chairman PROXMIRE. How is investment defined?

Mr. DIAMOND. Well, in this chart, it is strictly new plant and equipment. It does not include research and development. It does not include changes in inventory from one year to another, or capital repair. Those extra ingredients are often included under the rubric of investment

<sup>1</sup> See chart entitled "U.S.-U.S.S.R. : GNP," p. 50.

<sup>2</sup> See chart entitled "U.S.S.R.-U.S. : New Fixed Investment," p. 51.

for national income accounting, but in this case it is strictly reproducible fixed assets.

Chairman PROXMIRE. Are you quite confident in the comparability of the investment?

Mr. DIAMOND. Yes, in coverage we are. In the productivity of an asset we are less sure.

Now remember, Senator, this is expressed—

Chairman PROXMIRE. When you say the comparability of productivity of an asset, you mean they are putting in a machine tool system, for example, that might cost say \$10 million in a particular plant, and that might be a certain proportion of the GNP for that reason, but it might not be as productive as ours or might be more productive.

Is that it?

Mr. DIAMOND. That is right, sir.

Now, remember, these shares are expressed in their national currencies; that is, the first bar, is of course, in U.S. dollars. The second bar is expressed as shares of GNP in rubles.

#### SOVIET PRICING SYSTEM

Chairman PROXMIRE. In view of the arbitrary nature of their pricing system, they do not have a market system as we have, and in view of the fact that they use their pricing system to provide their priorities or determine their priorities, how can you be confident that this reflects the proportionate investment?

Mr. DIAMOND. A perceptive question. We are not confident. We have to assume that the relative prices, which as you just correctly pointed out are not market prices, do reflect relative scarcities of resources. But they are in fact synthetic prices set by the center, by the planners, and the Russians claim they reflect cost of production; that is, scarcity in that sense. They reflect planners' preferences, so, of course, in most cases they do not reflect preferences of the consumers as they would in a U.S. type economy, a market economy. We just assume that this relative scarcity as projected by the ratio of, say, machine tool and wheat prices has something to say about the opportunity cost or alternative return of resources used in the production of the machine tool or ton of wheat.

#### UNITED STATES AND SOVIET PRODUCTIVITY COMPARED

Chairman PROXMIRE. One of the things that makes me skeptical about this is that you have 30 percent of the gross national product in new fixed investment. This is a fantastic concentration.

Now, we are told—maybe I am badly misinformed—that something like 30 percent of their manpower is in agriculture, compared to about 4 percent of our manpower in agriculture.

Mr. DIAMOND. That is correct.

Mr. COLBY. But remember the productivity factor of the manpower, too. This is particularly true in agriculture.

Chairman PROXMIRE. Our productivity is much greater.

Mr. COLBY. It is fantastic. They are something like 11 percent of ours.

Chairman PROXMIRE. That is why it would seem to me that in the rest of their operations, the military, and they have some service sector, admittedly far less than ours, it would seem and people occupying various Government offices which I imagine are fairly comparable to ours, maybe even greater, it is hard to—

Mr. COLBY. It does reflect conscious decisionmaking, policymaking the way they run their society. The way we run our society, this reflects our decisionmaking.

Chairman PROXMIRE. But this does not necessarily mean they have got 30 percent of their manpower or their man-hours or man-years or however you want to put it, in investment.

Mr. DIAMOND. Not necessarily. Now, remember in that bar, the 30-percent bar, more than a fourth of the total investment is in agriculture, and this includes not only productive facilities but housing and other nonproductive facilities on farms. [Deleted]

Chairman PROXMIRE. Well again, that is—again, I do not want to take too long on this because we could go on and on and on—it was my understanding that they had 30 percent of their people on the farm, working on the farm, not working producing tractors or working producing other agricultural equipment, but on the farm.

Mr. DIAMOND. That is correct.

Chairman PROXMIRE. And I construe what you say as a quarter or so of their investment here is in agricultural equipment, but that would be in industry.

Mr. DIAMOND. Well it is, 20 percent is in so-called productive investment as you think of in U.S. farms. Another 5 percent is in so-called nonproductive, made up of housing, communal services and so on on the farms.

Now, the manpower cannot be separated out in separate boxes. That 30 percent figure was comprised of people that are principally occupied in producing crops and livestock. Other times of the year when crops are not growing, some of them are building barns, producing other kinds of construction that would be classified as investment. So what I am saying is, it is a messy accounting thing. Some of that manpower does reproduce—

Chairman PROXMIRE. That is why I am saying man-years would be a more useful comparison. If you have students, or if you have industrial workers, for that matter, taking a weekend out and going out to bring a crop in, that is undoubtedly a contribution which we ought to consider in terms of the amount of time they spent, the man-years. But if because they spend two or three weekends a year, consider them as farmworkers because they did work on the farm part of the time, it distorts the figures badly.

Mr. DIAMOND. Well, incidentally on the critical issue of how many people are actually involved at some time during the year in farming, I have calculated that the number would be doubled, that is about 34 million people working as a principal occupation in agriculture. The number of people that sometime during the year cultivate plots and take care of livestock is on the magnitude of 68 million.

Chairman PROXMIRE. I see.

Mr. DIAMOND. So when you sort that accounting out, which is very difficult, you get a much larger share.

#### SOURCE OF DATA ON FIXED INVESTMENT

Chairman PROXMIRE. Where did these fixed investment figures come from? Are they from published sources or are they independently derived?

Mr. DIAMOND. A published statistical handbook.

Chairman PROXMIRE. Do you have any system of verifying that, knowing whether it is consistent, or do you just accept the figures as published?

Mr. DIAMOND. This is where we have to accept their aggregated statistics.

#### UNITED STATES AND SOVIET CONSUMPTION COMPARED

Mr. COLBY. Mr. Chairman, we were talking about the population receiving a smaller share of the national product than they get in the United States. In 1973 the average Soviet citizen consumed about one-third as much goods and services as a U.S. consumer, but even this comparison does not tell the whole story. The Soviet consumer is also plagued by an inferior quality, assortment, and styling of clothes and durables, chronic shortages, and long queues at retail stores.<sup>1</sup>

Even compared with Eastern Europe, the level of living in the U.S.S.R. is markedly low.

Chairman PROXMIRE. And they consume only 60 percent of the food. They consume only three-fifths the amount of food we consume.

Mr. DIAMOND. In value terms.

Chairman PROXMIRE. In value terms but not in caloric terms.

Mr. DIAMOND. In caloric terms they are almost the same, 3,300 calories per day.

Chairman PROXMIRE. It seems to me that comparison would be more valid. In the dollar-ruble you can get awfully confused, can you not?

Mr. DIAMOND. Yes.

This is one of the problems of measuring the two at a different set of prices.

#### HEALTH SERVICES

Chairman PROXMIRE. How do you compare the health figure?

Mr. DIAMOND. Now this is again a mean, a geometric mean of health services priced out in dollars in both economies, and also priced out in rubles in both economies. The share in dollars would be 60 percent; in rubles the Soviet share would be 18 percent. Then we take a geometric mean of that or 32 percent.

Chairman PROXMIRE. If you allocated military there, would that be over 100 percent? In other words, per capita; in other words, it would not be consumption, of course, you would have to use another concept, but say per capita expenditure.

Mr. DIAMOND. Well, in dollars, yes, we are about the same absolute amount of dollars in both economies now. Their population is higher,

<sup>1</sup> See chart entitled "U.S.S.R.—U.S.: Per Capita Consumption, 1972," p. 52.

so I am saying it would be a little bit less, it would be about 90 percent.  
 Chairman PROXMIRE. It would be a little bit less, about 90 percent?  
 OK.

#### DURABLES

Mr. COLBY. Except for sewing machines, Soviet consumers enjoy only a fraction of the durables readily available in the United States. Many items, automatic washers, dryers, and freezers, simply are not manufactured or sold in the U.S.S.R.<sup>1</sup>

The situation is gradually improving, particularly for those on the bottom rung of the economic ladder. In the last two years, the new Togliatti plant has increased passenger car output substantially.

Chairman PROXMIRE. I am astonished. They do pretty well on that. I am astonished on that.

Mr. COLBY. The waiting period for a new car is now around two or three years, which is better than the previous six-year wait.

#### SOURCES OF DATA

Chairman PROXMIRE. As you go along, would you give us your sources on this?

Mr. DIAMOND. All of the data in the charts for both economies are official figures from statistical abstracts.

#### FOOD

Mr. COLBY. Mr. Chairman, the Russian people get enough to eat in terms of daily calories, but their diet is heavily weighted in starches and low in meat, vegetables and fruit.<sup>2</sup>

Under Brezhnev, the U.S.S.R. has made meat consumption the basic plank in its consumer program, and per capita consumption has increased by one-fourth since 1965. Nevertheless, the average Soviet citizen still eats only about 40 percent as much meat as his U.S. counterpart.

With this brief introduction, let us now look in detail at various sectors of the Soviet economy. I will begin with industry, which has been the showpiece.<sup>3</sup>

#### INDUSTRIAL PRODUCTION

During most of the postwar period, industrial production grew faster in the U.S.S.R. than in the United States. But the emphasis was on heavy industry, and producer goods have been favored over consumer goods.<sup>4</sup>

Although the growth of Soviet industrial production has been impressive, the quality and variety have been deficient. The leadership has been striving to overcome these shortcomings.

<sup>1</sup> See chart entitled "U.S.S.R.-U.S. : Stocks of Consumer Durables, 1972," p. 53.

<sup>2</sup> See chart entitled "Composition of Diets, 1972," p. 54.

<sup>3</sup> See chart entitled "U.S.S.R.-U.S. : Industrial Growth," p. 55.

<sup>4</sup> See chart entitled "U.S.S.R.-U.S. : Output of Producers' Goods, 1973," p. 56.

*Low Technology*

Soviet industrial managers, however, are hampered by the relatively low technological levels of their plants and equipment. Also, the planners criticize their inefficient use of industrial materials.

The managers in turn blame the shoddy equipment turned out by domestic machinery enterprises and failures in industrial supply.

Efforts to upgrade domestic machinery and economize on the use of industrial raw materials during the past 2 years have had only limited success.

Soviet industrial strength has been based above all on abundant raw materials and energy sources. These resources are still available, but are more expensive now.<sup>1</sup>

## OIL

Chairman PROXMIRE. Do they export—I see 92 percent crude oil compared to ours. They must export some of that.

Mr. COLBY. They export some of that.

Mr. DIAMOND. They export about a fourth of it. Their production is about 8.4 million barrels per day, and they export about 2.2.

## CEMENT

Chairman PROXMIRE. In cement, they produce substantially more than we do. We must produce a whale of a lot for our highway program.

Mr. DIAMOND. They are very heavy cement users in prefabricated building sections.

Chairman PROXMIRE. For housing?

Mr. DIAMOND. Housing, apartment buildings, factory buildings. They are very big in this method of construction. Moreover, the quality of their cement leaves something to be desired; that is, the average quality is less than ours. They have a lot of difficulty in making a given ton of cement last very long. They have to do an awful lot of capital repair.

## ELECTRONICS

Chairman PROXMIRE. In view of the fact they are so far behind us in electronics, radio and television, I take it a great deal of the electronics goes into the military.

Mr. DIAMOND. Yes, sir.

## COMPUTERS

Chairman PROXMIRE. On the other hand, their computers are very, very backward, and that is a very, very vital military resource. Apparently they are just behind us in that.

Mr. DIAMOND. They are just entering the computer age.

Mr. COLBY. Very badly behind us.

Mr. DIAMOND. That is why they are mounting such a campaign, to get access to computers in the west.

<sup>1</sup> See chart entitled "U.S.S.R.—U.S. : Output of Metals and Minerals, 1973," p. 57.

## ENERGY RESOURCES

Chairman PROXMIRE. I am surprised they have so little natural gas. I thought that was one of the—

Mr. COLBY. They have large reserves. It is a question of output.

Chairman PROXMIRE. I see.

Mr. DIAMOND. Later, a chart will show the various components of the total energy balance.

Chairman PROXMIRE. I do not see coal there.

Mr. DIAMOND. We are about the same in coal; 610 million tons is the net production in the Soviet Union. The United States produces somewhat less. The U.S. coal has a higher average caloric content, so we come out about the same.

## METALS AND MINERALS

Mr. COLBY. Mr. Chairman, production of metals and minerals is sufficient in most cases to provide for both domestic requirements and Eastern European needs. The major exception is tin, which has to be imported in large quantities.

Nevertheless, the Soviet Union has already exploited many of its most accessible mineral deposits. Most of the remaining reserves are in Siberia or the Far East, where the severe climate and lack of transportation and local labor hinder development.

## UNITED STATES AND SOVIET ENERGY RESOURCES COMPARED

Energy, now such an important word in the United States, is also very much on the minds of the Russian leaders. Just as in our country, Soviet economic growth has depended on the exploitation of huge energy resources. There are, however, substantial differences in the pattern of energy consumption in the two countries.<sup>1</sup>

Nevertheless, the shift toward oil and gas in the Soviet energy balance has been rapid. Also, growing quantities of petroleum have been sent to Eastern Europe and the west.<sup>2</sup>

It may be comforting to know that in recent months Soviet petroleum officials have complained about the headaches the world energy crisis has given them.

Chairman PROXMIRE. Their reserves are 262 percent of ours?

Mr. DIAMOND. That is their claim.

Chairman PROXMIRE. Well, I thought our claim, we were supposed to have a third of all the coal in the world. Is that wrong, in our reserve?

Mr. DIAMOND. I am not aware of that statistic, Senator. The arithmetic could be parallel, but—now, remember, there are various types of coal.

Chairman PROXMIRE. We define reserves, of course, in the amount of coal or oil that you could bring up at a particular price. I raised hell about what the American Petroleum Institute did in basing our

<sup>1</sup> See chart entitled "U.S.S.R.—U.S. : Primary Energy," p. 58

<sup>2</sup> See chart entitled "U.S.S.R. : Imports and Exports," p. 59

present reserves on 1972 prices, for instance, utterly unrealistic and I think ridiculous. However, it seems to me that in a nonmarket economy such as theirs, again to base it on price would be—unless they do it on some kind of a world price, would be very difficult.

Mr. DIAMOND. There are caveats that should be added to that chart, one of which you alluded to. The Soviets traditionally have never been very rigorous about defining what they mean. The Bureau of Mines has a more rigorous statement on reserves, that is, proved resources. The Soviets are very loose about this, and we have reason to doubt some of the statistics. The largest caveat about those data have to do with whether these are actually accessible sources of energy.

Chairman PROXMIRE. How thoroughly have they explored their territory for coal and oil? Comparable to ours?

Mr. DIAMOND. Well, they work at it very hard, but let me give you an anecdote to show you how elusive these statistics are. As you know, the Japanese and the Soviets have been discussing for some time exploitation of the Continental Shelf around the Sakhalins and the gas deposits right on the island. Here is an example of ongoing negotiations where you would think they would bring their best geological talents to bear. So they claim a very large amount of gas and other types of energy in the area, running—they could have taken care of  $x$  percent of Japanese needs for about 20 years, a large percentage, 15 to 20 percent. And these talks even got to the Prime Minister level, and finally Kosygin had to say they had looked at the arithmetic again. He said they had made a mistake by the magnitude of four. That is, instead of 60 billion cubic meters of gas, there are only 16 billion cubic meters. The Japanese were horrified that they had gone as far as they had in these negotiations without a better Soviet estimate.

#### SOVIET EXAGGERATIONS

Chairman PROXMIRE. Is there not a penchant for overstating, tending to boast about the success of the socialist economy compared to the bourgeois capitalist economy?

Mr. DIAMOND. Oh, yes.

Chairman PROXMIRE. Do they not tend to exaggerate their growth, exaggerate their reserves, their progress and so forth, so that statistical material is likely to show larger rather than smaller gains than the actual case?

Mr. DIAMOND. Generally that is true.

Chairman PROXMIRE. Are you able to take the published sources and try to reconcile them so that you find that their claims for a certain amount of sewing machines, and the automobiles and the television sets and the radio and so forth, and their military claims, military equipment of various kinds, and their agricultural reports, and reconstruct a fairly consistent picture, coherent picture of their whole economy so that it does square out roughly at least?

Mr. DIAMOND. Yes, sir, roughly. Scholars working independently in this country and abroad have done this for important commodities in physical terms. That is, if they claim to have produced 125 million tons of steel, the claim is reasonably consistent with the end use of that metal in the economy. Things roughly check out in this context.

Chairman PROXMIRE. So you do have that overall discipline.

Mr. DIAMOND. That's right, in most sectors. Let me emphasize, in industry this is true; in agriculture it is much less true, and we have real problems of reconciliation there.

Chairman PROXMIRE. Because they tend to exaggerate their production.

Mr. DIAMOND. Yes, sir.

Chairman PROXMIRE. Thank you.

#### OIL

Mr. COLBY. They claim, for instance, that the U.S.S.R. does not have enough oil to simultaneously meet its own requirements, fill the needs of other socialist countries and continue to expand deliveries to establish markets in capitalist countries.

Although crude oil output was below plan in 1972 and 1973, shortages similar to those in the United States did not and will not occur. The U.S.S.R. is a net exporter of about 2 million barrels per day of oil, almost one-fourth of total domestic production. About one-half of these exports go to the West, especially Western Europe.

Moscow has little, if any, uncommitted oil from domestic sources with which to expand sales to the West and take advantage of the present prices.

The expanding demand for oil and gas comes at a time when production from existing Western fields is leveling off. The development of Siberian and offshore deposits must fill the gap.

Exploitation of these new sources will require a huge investment. Moreover, without foreign, especially United States, help, development will be delayed. The U.S.S.R. lacks some of the critical technologies needed to drill at great depths and offshore, or to pipe gas across the Siberian permafrost.

#### AGRICULTURE

Annoying as these energy problems may be, the real economic headache in the Soviet Union is agriculture. Despite massive investments under both Khrushchev and Brezhnev, assuring an adequate food supply for a growing population has been a constant problem.

Of all sectors in the United States and Soviet economies, agriculture offers the greatest contrast in terms of organization and efficiency.

For example, the Russians employ 31 percent of their labor force in agriculture, as opposed to 4 percent in the United States. The Soviet output per worker, however, is only 11 percent as much as is achieved in the United States.

A measure of Soviet production methods can be gleaned from the fact that they have only 5 percent as many trucks per 1,000 farmworkers as we do.

Finally, the U.S.S.R. has been expanding sown acreage in an effort to increase production, while the United States, until recently, had been reducing the area under cultivation and struggling with farm surpluses.

Soviet agriculture is handicapped by a short growing season and an extreme continental climate. As a result, production is highly variable. The crop failure of 1972 was followed by a record harvest

in 1973, only the most recent example of the large swings in the crop yields.

Soviet farm production has climbed far above the level of a decade ago, but still cannot provide the quality diet that the Soviet population desires. The demand for meat is rising faster than incomes, placing a severe strain on the Soviet grain-livestock economy.

Changes in the size of the Soviet grain crop have worldwide repercussions, especially since Brezhnev's program to provide the Soviet people with a better diet has pulled up the demand for feed grain.

Through 1971 grain production did not keep pace with demand, and deep inroads were made into government stocks. Then, confronted by the poor 1972 harvest, the regime imported massive quantities of grain, over 24 million tons in fiscal year 1973, rather than abandon its livestock goals. Of this total, 18 million tons were wheat to replace the Russian wheat that had been fed to livestock.

The United States supplied most of these grain imports, 10.5 million tons of wheat, 3.7 million tons of corn and a little rye and barley.

In 1973 the gross Soviet grain harvest was a record, about 222 million tons. After discounting for unusually high moisture content, we estimate the net usable grain at about 170 million tons. This harvest should reduce grain imports in fiscal year 1974 to perhaps 12 million tons, about half wheat and half other grains.

The record crop and continuing imports will permit a rebuilding of stocks and continued exports to client states. Also, the Soviet Union will be able to offer grain for political purposes, such as the loan of 2 million tons of wheat to India last year.

Sensitivity to the economic situation is characteristic of the Soviet leaders. The leadership, for example, is well aware of the variations in grain output and the ever present possibility of having to increase grain imports. On the whole, they view the past economic record with a sense of accomplishment, but are not entirely pleased.

#### *Soviet Union far behind United States*

The fact that troubles Soviet leaders, despite great progress, is that the U.S.S.R. remains far behind the United States in a number of key areas. The emergence of Japan as a major economic force has added to this concern.

The slide in the GNP growth rate naturally worries the leadership, because catching up with the West depends on vigorous economic growth. Declining rates of growth in productivity are causing the most concern. Past growth was based on large increases of productive farm land, new plants and equipment, and workers. Except for labor, the rate of growth of these factors has declined sharply.

#### *Source of Data*

Chairman PROXMIER. I take it that all of your statistics on agriculture production are published figures.

Mr. COLBY. I think most of them.

Mr. DIAMOND. With the exception of grain and the major vegetable oil crop—sunflower seeds—and two minor technical crops. All of the other statistics we accept.

Now, in the case of grain, we apply variable discounts over time.  
Chairman PROXMIRE. You said grain?

Mr. DIAMOND. Grain, yes. As Mr. Colby indicated, they claimed last year 222 million tons of gross production.

Chairman PROXMIRE. That is the most important product of all, is it not?

Mr. DIAMOND. Yes.

Chairman PROXMIRE. And you do not accept that?

Mr. DIAMOND. We will not accept that.

Chairman PROXMIRE. And you say you apply a variable discount? How big?

Mr. DIAMOND. In the wet year, 1973, we discounted by 24 percent. In a dry year, we may discount—

Chairman PROXMIRE. You discounted by knocking out the moisture content?

Mr. DIAMOND. The trash, moisture, weed seeds—they have a very gross concept, as the grain comes out of the bunker of the combine, which we feel is not in keeping with accounting practices in other countries.

#### *Confidence in Data*

Chairman PROXMIRE. On the basis of past experience, are you pretty confident of your ability to discount that accurately?

Mr. DIAMOND. Not too confident.

Chairman PROXMIRE. Is there an error factor of about 10 percent?

Mr. DIAMOND. Possibly. We are undertaking research right now, and trying to narrow the probable range of error. We think we are probably a little high at the present time, but in any case, the point is that one, you cannot accept the Soviet statistics on grain production.

#### GROWTH OF GNP

Mr. COLBY. This chart <sup>1</sup> will help explain this problem. You can see the rates of growth of man-hours worked, fixed capital, and farmland in the Soviet economy. The chart also presents our rough estimate of the extent to which changes in both the quantity and the productivity of man-hours, land, and capital were responsible for past growth in GNP.

From 1950 to 1958, the very rapid growth of capital stock and the farmland added by Khrushchev's virgin land campaign helped push the rate of growth of GNP to almost 7 percent each year. The rate of growth of man-hours was held down by the delayed effects of low wartime birth rates. But, at the same time, the productivity of land, labor, and capital increased almost as fast as combined factor inputs did.

Before Khrushchev's fall from power, Soviet growth slowed because the rate of growth of inputs declined, and the growth of productivity of land, labor, and capital combined, slowed. The Brezhnev coalition was able to improve somewhat on this situation in 1965-73, but only by stepping up the man-hours worked. The rate of growth in productivity of land, labor, and capital continued to fall.

<sup>1</sup> See chart entitled "U.S.S.R.: Average Annual Rates of Growth," p. 61.

## PRODUCTIVITY

Soviet leaders have repeatedly indicated that their economy will have to depend primarily on productivity gains, rather than on massive additions of men and equipment.

Another way of looking at the question of productivity is to compare labor productivity in the U.S.S.R. and the United States. In spite of a volume of investment per worker nearly equal to U.S. levels in recent years, labor productivity in Soviet industry is only about half the U.S. level.

Chairman PROXMIRE. That has to be one of the most shocking statistics for them and encouraging to us. Ten percent, one-tenth. It takes 10 people, it takes 10 farmers in Russia to produce as much as one farmer in the United States. Now, you have indicated one difference, with 20 times as many tractors here. There undoubtedly are others, but it has been my understanding that they have gone quite a long way in mechanizing their farms or electrifying their farms. They have collectivized their farms, obviously, and used mass production a lot, but somehow this has broken down. Their most productive operation is on the little family plots that they permit, but in a very limited degree.

Has there been any analysis as to why you have this very shocking difference, other than the obvious difference in inputs that you mention?

Mr. COLBY. Well, there is another one like that, which is sown acreage per tractor, in acreage. One tractor sows 64 acres in the United States, and one tractor per 258 acres in the Soviet Union. In other words, they do not have the kind of tractor work that we have, anywhere near it.

As an example of that kind of—

Chairman PROXMIRE. But that is only 4-to-1 ratio, and the productivity is 10 to 1.

Mr. COLBY. The grain acreage harvested per combine, the number of acres harvested per combine that they own, 52 acres in the United States, 473 in the Soviet Union. In other words, that is all the combines they have.

Chairman PROXMIRE. How about the motivational impact?

A lot of our farms, in my State, for instance, about 99 percent of our farms are family owned. Everybody works on a farm; husband, wife, the kids. They have a terrific motive because that is what they live by. That motive is lacking in a collective farm, where, of course, they do not have a direct payoff on the basis of their effort in productivity.

Is there any way that that can be analyzed or that element—

*Managerial Problems*

Mr. COLBY. We think the managerial problems are really the heart of the problems in trying to run one of these collectives with people with jobs rather than incentives.

Mr. DIAMOND. There is an abysmal lack of incentive arrangements under which the typical peasant can relate his labor input to some reward. This, of course, leads to very low productivity.

Chairman PROXMIRE. Well, you would think it also would have an element of lack of concern for the equipment. I worked on a dairy farm in Wisconsin last year only for a day, but long enough to see how the farmer operated, and boy, they have to take loving care of their equipment. In the first place, it is a big part of their investment. If all the farmer has is \$100,000, about 90 percent of that is in his equipment. They are very careful about it. On the other hand, if the equipment is owned by the collective, why worry if you wreck it or ruin it.

Mr. COLBY. Or forget to put oil in it.

Mr. DIAMOND. A particular tractor or combine in the Soviet setting will last between 5 and 10 years, depending on the types of machinery. In the United States they are double. That is, a farmer in this country can maintain a comparable type of machine for twice that length of time.

### *China Compared*

Chairman PROXMIRE. Do you have the same kind of problem in China where you have vast collectives, where you have a different degree of motivation, at least there appears to be?

Mr. ASHBROOK. Sir, the combination of resources in China is completely different. There you have a lot of labor applied to a small amount of land. You are closer to the revolution. You have more enthusiasm. You have a simpler managerial situation, and given all those things, the outlook not only is different, but I would say from the point of view of the Chinese leadership, much better than in the problem—

Chairman PROXMIRE. When you say simpler you mean simpler in terms they do not have the complex tools and so forth to work with? It is a man and his family and the soil.

Mr. ASHBROOK. That is right, that is right.

Chairman PROXMIRE. And a few simple tools.

Mr. ASHBROOK. And despite the talk of tractor output and so on, there is very little impression in the countryside of mechanization in most of the countryside.

Mr. COLBY. There is a higher degree of discipline, and it is part of being closer to the revolutionary experience.

### *Lack of Chinese Statistics*

Chairman PROXMIRE. Does China publish statistics that are reliable?

Mr. ASHBROOK. China in the 1950's published statistics that were an embryonic copy of the Soviet system. From 1960 on there has been a statistical blackout, so we have to piece things together.

Chairman PROXMIRE. Piece them together from what?

Mr. ASHBROOK. We piece them together first going back to the statistical base of the 1950's, then using the general percentage claims in the Chinese press, using the observations of diplomats, travelers, technical people, overseas Chinese who visit their friends, and then the range of special sources available to us, and using those all together, we reconstruct the picture.

Chairman PROXMIRE. Well, this is my fault entirely, because it is so fascinating, we could take days for this. Unfortunately we only have this morning. Maybe I had better desist in my questions for a while

and you move ahead. We are especially interested, of course, in getting the military report.

Mr. COLBY. All right. I think I can read it pretty fast for you.

#### UNITED STATES AND SOVIET PRODUCTIVITY COMPARED

I think we made the point that in spite of the volume of investment per worker nearly equal to United States in recent years, labor productivity in the Soviet Union industry is only about half the U.S. level. Soviet industry was able to grow faster than United States industry by increasing employment.

Similarly, farm labor is only about 10 percent as productive in the U.S.S.R. as in the United States, and this gap is not shrinking.

Managerial problems inherent in a centralized and bureaucratic system are the root causes of this consistently poor productivity.

Until recently, Communist planners believed that intensive domestic R. & D., plus "borrowing" the latest Western technology, would enable the U.S.S.R. to gain economic superiority. But they underestimated the pace of Western technology, particularly in Germany and Japan, and overestimated the efficiency of their own R. & D. effort.

#### *Technological Gap*

Thus we come to the so-called technological gap, which is becoming a vexing political dilemma for the Soviet leaders, as well as a crucial economic problem. This gap is an across-the-board one, from ICBM systems to electric razors, and increasing contacts with the developed West have made it harder to conceal this situation from the Russian people.

Public lecturers in Moscow are questioned as to why Soviet citizens do not have the gadgets that Westerners have long been accustomed to.

An acute perception of this gap has spurred the Soviet leaders to increasingly intensive efforts to acquire Western technology.

Marxian concepts concerning the inevitability of Western economic collapse and the superiority of communism have quietly given way. Instead, Moscow now considers trade with the developed West as essential to close the technological gap.

The major channel that the U.S.S.R. uses to acquire technology from abroad is the outright purchase of machinery and equipment. Soviet orders for Western machinery and equipment hit \$2.7 billion last year, a 60-percent increase over 1972. The United States got \$500 million worth of these orders.

Other channels have included the acquisition of technical data, contacts with Western firms and scientists, and formal arrangements for joint research and exchange of scientific and technical information.

In some military applications, the results of this reverse engineering have been good; in civilian sectors, the outcome has been less happy. Western equipment frequently is not as productive in a Communist setting as it is on native ground. Attempts to exploit foreign technical data or copy foreign machinery have had mixed success.

## SOVIET IMPORTS OF MILITARY TECHNOLOGY

Chairman PROXMIRE. Again, I really hate to interrupt, you say in some military fields as a result of this, reverse engineering has been good. Does that mean they've been getting military assistance from the West?

Mr. COLBY. Well, they have been getting military technology which they can turn to good use.

Chairman PROXMIRE. Such as what?

Mr. COLBY. Computers, some scientific instruments and advanced equipment.

Chairman PROXMIRE. Where do they get the computers and electrical equipment, from Germany?

Mr. PAISLEY. A variety of countries, Western Europe and Japan primarily.

Chairman PROXMIRE. Is there no NATO policy at all?

Mr. COLBY. Well, we have the old COCOM arrangements, which have been eroding away.

Mr. PAISLEY. The control list has been steadily reduced as Soviet technology has become more advanced, and now electronics items are the dominant items on it. The most highly advanced equipment and computers are covered.

Chairman PROXMIRE. Do you have statistics showing which Western countries have given military equipment to the Soviet Union, or military technology, which types?

Mr. PAISLEY. Not at my fingertips, sir, but most of the modern industrial nations have some technology of interest to the U.S.S.R. which is incorporated in civilian equipment.

Chairman PROXMIRE. Are statistics available?

Mr. COLBY. I think we could reconstruct some. They would not be total because some shipments are not discovered.<sup>1</sup>

Chairman PROXMIRE. Do these come from U.S. multinational corporations to any considerable extent?

Mr. PAISLEY. They might come from U.S. companies. If it is manufactured under a U.S. license, it would be examined by a committee in the United States under U.S. export policy.

Chairman PROXMIRE. If there is a U.S.-owned company in West Germany, for example, making computers or something, then would that plant have to get a license from the State Department in order to export to the Soviet Union?

Mr. PAISLEY. Yes, sir; from the Department of Commerce if it were utilizing U.S. licenses and U.S. technology.

Chairman PROXMIRE. Well, how much do they have to—what defines U.S. ownership?

Mr. PAISLEY. It is largely determined by the particular components that are involved. If the components are licensed under U.S. control that is, then it is not a question of size or proportion of ownership but whether the technology is under U.S. unilateral control by virtue of patents or copyrights.

Chairman PROXMIRE. Suppose it changes hands? Can it be sent from a U.S. firm to a German firm and then go on?

<sup>1</sup> Classified response submitted.

Mr. PAISLEY. The Soviets have utilized many different ways to acquire what they want. Evasion has occurred.

Chairman PROXMIRE. Has occurred.

Mr. PAISLEY. Yes.

Chairman PROXMIRE. Very well. You may continue, Mr. Colby.

#### EFFECTS OF DÉTENTE

Mr. COLBY. The onset of détente has dismantled some of the traditional obstacles to Soviet acquisition of U.S. technology. Medium-term and long-term credits extended after May 1972 resulted in a large increase in Soviet imports of U.S. equipment and technology. In addition, U.S. export controls have been relaxed, but still restrict Soviet access to very specialized and sophisticated foreign technology.

#### AGRICULTURE

The leadership team that assumed power in 1964 has attacked economic problems on a number of fronts. The present regime, unlike its predecessors, has given agriculture a consistently high priority. Since 1965, the share of total investment going to agriculture has averaged almost 20 percent. American agriculture gets less than 5 percent of U.S. investment. Average incomes of farmers have risen by over one-half during the Brezhnev era, as opposed to one-third for other workers.

Brezhnev has just announced an enormous program to increase and upgrade the farm lands of European Russia.<sup>1</sup>

Last month, he declared that 35 billion rubles would be spent during 1976 to 1980 in the first phase of a 15-year project to develop the non-black soil region of the Russian Republic. This is almost one-fourth of the total agricultural investment planned for 1971 to 1975.

His aim is to reclaim or improve 124 million acres, 79 million of cropland, and 45 million of grazing land. The cropland would be equivalent to about 15 percent of current sown acreage.

The nonblack soil areas has large tracts of boggy, uneven land, but it has high annual precipitation and responds well to the application of lime and mineral fertilizer, the dark patch over here. The Soviets hope that this region will provide steady growth in grain production.

The Soviets do not have a good track record in land reclamation, however, and the Brezhnev program is unlikely to work out as announced. In any case, major benefits will not appear before 1980.

Organizationally, the 1965 economic reform attempted to improve efficiency by making managers cost and profit conscious. Success was very limited, however, because managers were still told to meet output goals regardless. Continued tinkering with the system has not fundamentally altered managerial attitudes.

Another step to improve the economic picture was increased trade with the West, which has become especially important since the late 1960's.<sup>2</sup>

<sup>1</sup> See chart entitled "Non-Black-Soil Zone of the U.S.S.R.," p. 63.

<sup>2</sup> See chart entitled "U.S.S.R.: Foreign Trade by Major Area Exports Plus Imports," p. 64.

## PURCHASE OF U.S. GRAINS

Recently, the emphasis has shifted to trade with the United States in particular. Only the United States had the grains the Soviet Union needed in 1971-72, and relaxed U.S. controls stimulated sales of machinery to the U.S.S.R.

Almost all Soviet trade with the developed West, and with some less developed countries, is paid for with hard currency, as distinct from barter trade. An upsurge in imports from these areas has not been matched by increased Soviet exports, resulting in a hard currency deficit averaging about \$250 million annually from 1960 to 1971.<sup>1</sup>

## TRADE WITH THE WEST

Until the mid-1960's, these deficits were financed primarily by gold sales. By the end of 1965, however, Soviet gold reserves were down to about 1,000 tons, and Western government-guaranteed medium- and long-term credits applied to Soviet purchases of capital goods became the chief method of financing Soviet deficits. During 1966 to 1971, such credits amounted to more than \$2 billion. In 1971, debt service, payments of principal and interest, were equal to 17 percent of Soviet hard currency exports.

The U.S.S.R.'s merchandise trade deficit with the hard currency area reached a record \$1.7 billion in 1973, largely because much of the grain purchased in 1972 was delivered in 1973. The U.S.S.R. imported at least \$1.5 billion in agricultural products, chiefly grain, and about \$1.5 billion in machinery and equipment. Soviet export earnings were higher than in 1972, however, in part because of higher prices for oil.

To cover the 1972 deficit, the U.S.S.R. relied on new government-backed net medium- and long-term credits, as well as substantial gold sales for the first time since 1965. Gold reserves had been built up again as a result of growing production and the low volume of sales.

In 1973, the burden of recent trade deficits was lightened considerably by easy access to Western credits and by the windfall increase in the price of gold. In addition, dollar devaluations permitted the substantial Soviet borrowing on the Eurodollar market in 1972 to be repaid with cheaper dollars.

## PROSPECTS FOR THE SOVIET ECONOMY

This brings us to the question of the prospects for the Soviet economy. We believe that over the next few years it is likely to continue to grow at a rate considered good by Western standards, although somewhat slower than in the past.

We estimate that the U.S.S.R. can increase its GNP from 4½ to 5½ percent per year through the rest of this decade by adding new contingents of labor at about current rates, while the pace of capital investment slows slightly.

## EFFECTS OF MILITARY SPENDING ON GROWTH

Chairman PROXMIRE. I hesitate to interrupt, but I just have to. I would like to know what assumptions this rate of growth makes with

<sup>1</sup> See chart entitled "U.S.S.R. : Hard Currency Merchandise Trade," p. 65.

respect to military investment because it is my understanding that to the extent that they continue to maintain a large military force, and they invest in the military, that it means they have that much less in the gross national product that they can put in investment in equipment, in plant and agriculture and other areas that make their economy grow. So this growth to 4½ and to 5½ percent is based on the assumption the U.S.S.R. will continue to sharply expand their military, or does it assume they will slow it down somewhat?

Mr. COLBY. I think over the past 10 years we've had 3 percent—

Mr. DIAMOND. As the share of gross national product, Senator, it has been falling because the economy has been running at 5 or 6 percent.

Chairman PROXMIRE. As the share of what has been falling?

Mr. DIAMOND. The share of gross national product spent on defense has been falling.

Chairman PROXMIRE. Has been falling in the Soviet Union.

Mr. COLBY. The Soviet Union has had a small increase in their defense budget, and the GNP increase has been larger. [Deleted.]

Chairman PROXMIRE. You are going to come to that a little later, I take it.

Mr. COLBY. Right.

Chairman PROXMIRE. Good.

#### ECONOMIC TIES WITH THE WEST

Mr. COLBY. This estimate, of course, assumes relatively stable internal and external political conditions. Expanded economic ties with the West will have an important place in Soviet plans, and they will almost certainly want to trade more with the United States, especially for high technology products.

If trade relations with the United States were broken, however, they could find most of what they want in Western Europe and Japan.

#### NEGOTIATIONS WITH JAPAN OVER COAL PROJECT

In this connection, the U.S.S.R. and Japan initialed a document last month that could pave the way for one of the biggest economic deals between the two countries since the end of the Second World War.

If final agreement is reached, the Japanese will provide a credit of \$450 million to help finance a coal mining project in Yakutsk in eastern Siberia. The Japanese will be repaid by deliveries of coking coal beginning in 1983. This is Yakutsk up here, and this is the Tyumen Oil Field, very substantial.<sup>1</sup>

Senator SCHWEIKER. How close is the coal development to the Eastern Siberian mining that I guess it is oil drilling that we are financing through the Export-Import Bank in eastern Siberia.

Mr. DIAMOND. Now, the gas field above Yakutsk is one set of negotiations, as you can see on the chart, north of the coal fields and further back in the hinterlands, more permafrost. One set of negotiations with Japanese and American companies is under way.

<sup>1</sup> See chart entitled "Japanese Interested in Siberian Resources," p. 66.

Senator, is that what you were alluding to, or the other set of negotiations to the west?

Senator SCHWEIKER. The North Star project.

Mr. DIAMOND. The North Star project is in the Tyumen Field where Mr. Colby is pointing here, and that proposal is quite independent of the negotiations in Yakutsk. The gas in the Yakutsk fields would flow to the west coast. The Tyumen gas would be delivered to the U.S. east coast.

Senator SCHWEIKER. All right. Thank you.

#### SOVIET ECONOMIC RELATIONS WITH WEST GERMANY AND FRANCE

Mr. COLBY. The U.S.S.R. has been particularly active in increasing its economic relations with West Germany. Recent discussions have centered on the possible West German construction of nuclear power plants in the U.S.S.R. A contract has been signed for joint development of a \$1 billion iron ore and steel plant in Kursk, in Central European Russia.

France has also continued to support Soviet development. Within the last year, French firms have signed two contracts, \$150 million for the development of a Siberian cellulose plant, and \$100 million for the design and equipping a complex of five petro-chemical plants. There has also been some discussion of French participation in the construction of a \$1 billion aluminum complex.

Senator SCHWEIKER. In these deals they work out, what kind of interest rates do the Russians get? I know the Export-Import Bank has 6 or 7 percent. I am just curious on what kind of interest can they get from Japan and France, for example, in the long range development.

Mr. DIAMOND. They are getting comparable interest rates. These western governments have been underwriting, through their banks, underwriting interest rates of 5½ to 6½ percent. Now, as Mr. Colby will bring up in just a second, there has been a sizeable turning point just in the last two weeks in the negotiations with the Germans in opening up the large ferrous metals developments in European Russia, \$1 billion iron ore and steel plant. The Russians again came hat in hand and said we want 6-6½ percent, 10-11 year pay periods, and as you may have seen in the press, this caused Mr. Brandt some internal political problems.

Senator SCHWEIKER. Over the relatively low payments.

Mr. DIAMOND. Over the subsidy. The prime rate in Europe is currently 10 or 11 percent, so that in effect this would be a subsidy to the Soviets.

Then the Soviets overnight abandoned the negotiating posture and said they would pay cash.

Senator SCHWEIKER. What project was that?

Mr. DIAMOND. The Kursk iron ore and steel complex, which is in European Russia just north of the Ukraine.

Senator SCHWEIKER. Thank you, Mr. Chairman.

Go ahead.

## SOVIET POSSIBILITIES FOR INCREASED TRADE IMPROVED

Mr. COLBY. From the Soviet side, the possibilities for increased trade have improved, and Soviet hard currency earnings should rise rapidly over the next few years.

With expenditures for Western grain in 1974 expected to be half or less of 1973 outlays, these earnings could easily support a large rise in Soviet imports of Western plants, equipment and other goods. Imports of machinery and equipment, which rose sharply in 1972 and 1973, should increase even faster in 1974-1975.

The value of Soviet exports should rise sharply during 1974-1975 because of the much higher prices for oil and raw materials. With market prices expected to range between \$7 and \$10 per barrel, oil exports alone may earn \$2 billion to \$3 billion in 1974 and \$2.6 billion to \$3.7 billion in 1975. Higher prices for wood products, chemicals and coal, along with expanded deliveries of natural gas, could push total Soviet exports to almost \$6 billion in 1974, double the 1972 level, and to \$7 billion in 1975.

Gold sales, however, represent the largest single additional source of potential foreign exchange earnings. Soviet gold reserves are now estimated to be more than adequate in view of the long term debt of \$3.6 billion at the end of 1973. The Soviets would therefore be free to market most, if not all, of current gold production in Western markets. [Deleted.]

Between 1976 and 1980, the outlook for the Soviet balance of payments is less favorable than in 1974-75. Exports of crude oil to the West are expected to peak in 1976 and then decline as a result of constraints on domestic supply, higher domestic consumption, and commitments to Eastern Europe, as well as limits on the volume of barter imports from the Middle East.

Earnings from other sources such as gold sales, tourism, and transportation should help to soften the impact of the declining oil revenues. If the U.S.S.R., for example, continues to sell just its yearly production of gold on Western markets, at \$150 an ounce, annual revenues could reach about \$1.5 billion by 1980.

The projected fall-off in Soviet hard currency exports has broad implications for the U.S.S.R.'s foreign trade position. If imports on long term credits continue to increase at the present rate, and if the U.S.S.R. concludes the massive cooperative projects now being discussed with the West, for example, the Tyumen, Yakutsk, and North Star oil and gas projects, total long-term debt could reach \$9 or \$10 billion by 1980.

Service on such a debt would require approximately \$2.3 billion, or 35 percent of projected Soviet exports in 1980.

The Soviets, however, probably will not continue to increase drawings on Western credits at present rates. In view of their improved export potential, they may pay cash for some of their purchases. They did just that last month when they paid for West German equipment for the first stage of the Kursk iron and steel complex.

## LONG-TERM PROBLEM OF MANAGING A COMPLEX ECONOMY

Over the long term, the Soviet leadership's most difficult problem in the economic sphere will be how to manage an increasingly com-

plev economy. The economic mechanisms devised by Stalin were effective in pulling the country up by the boot straps, and establishing the basic foundations of an industrialized economy.

The present system, however, pays too little attention to price, cost, and demand factors, and does not seem well suited to meeting the needs of a modern society.

The challenge facing the current leadership is to adjust the system to meet these needs without surrendering the power they hold so dear. No one, either inside or outside of the U.S.S.R., has yet advanced a convincing program for economic reform that would achieve this kind of balance.

#### SOVIET MILITARY PROGRAMS

Mr. Chairman, you probably noticed that in this review of the Soviet economy I made no mention of the impact of expenditures for military programs. The omission was intentional. Since you have indicated a particular interest in this problem, I thought it best to respond at some length, in a separate section. I might begin by assuring you that the Soviet leaders, also, are intensely concerned with this matter, and keep a close eye on defense spending. They apparently believe, however, that their economy is capable of sustaining or even accelerating the pace of defense spending.

#### *Spending Growth Rate*

Soviet defense and space spending has been growing by about 3 percent per year since 1960. The economy has been growing faster, however, and the share devoted to defense declined.

Military expenditures impact on the Soviet economy principally by appropriating some of the best materials and highest quality skilled and professional manpower, but they are not a chief cause of Soviet economic difficulties. The civilian economy would, of course, benefit from having more of these scarce, high quality resources, but their transfer to civilian purposes probably would not boost overall economic growth much.

Chairman PROXMIRE. How much has the decline been in the military share of the GNP since 1960?

MR. PAISLEY. I think it has been something around 10 percent to 7 or 8 percent.

Chairman PROXMIRE. It has gone from 10 percent down to 7 or 8 percent?

MR. PAISLEY. Yes, sir. This is a very gross approximation. It is the trend that we see as more important than a level.

#### *Definition of Military*

Chairman PROXMIRE. Now, when you say 7 or 8 or 10 percent, 7 or 8 percent, what do you mean by the military? What does it include?

MR. COLBY. It is military and space, and it is comparable—we tried to make it—

Chairman PROXMIRE. Their space program is part of the military program much more than ours is.

MR. COLBY. Not totally, but largely.

Chairman PROXMIRE. We have the problem in our military of including atomic energy or not, and in some of our other efforts.

Do you have the same problem in their approach?

Mr. COLBY. Defining which side it is, yes.

Mr. PAISLEY. We do include the atomic energy allocations that relate to national defense programs in both countries.

Chairman PROXMIRE. Well, in view of the fact that their GNP is about half of ours, if they have about 71½ percent—

Mr. COLBY. If I could ask you to wait a minute, Mr. Chairman, this is a terribly complicated subject. I have an explanation of it, and then I think we could answer your questions better.

Chairman PROXMIRE. Very good.

### *Organization of Soviet Military Forces*

Mr. COLBY. A few words about the organization of the Soviet military forces may help to make the amounts spent on them more meaningful.

There are five main branches of service: The ground forces, the navy, the air defense forces, the air force, and the strategic rocket forces. The Soviets also maintain an active research and development establishment, as well as a space program that has both civilian and military applications.

#### *Ground Forces*

The Soviet ground forces, as well as air defense forces, are much larger than those of the United States. All together, the Soviets have about 4 million men under arms, about one and a half million more than the United States.

Chairman PROXMIRE. Is that full time?

Mr. COLBY. Yes.

Chairman PROXMIRE. It does not include reserves?

Mr. COLBY. No, it does not. They have a militia out beyond that.

Chairman PROXMIRE. How do you know this 4 million?

Mr. COLBY. By reconstruction of units, by strengths, supplemented by examination of all available sources.

Chairman PROXMIRE. Do you have a sufficient number so that this is a pretty hard, reliable figure do you think?

Mr. PAISLEY. Some elements are quite hard, some elements of the estimates. Others, we know much less perfectly because they are simply not accessible to our sources.

Chairman PROXMIRE. What would you say is the margin of error here for the 4 million, 100,000 give or take?

Mr. PAISLEY. 200,000, give or take.

Chairman PROXMIRE. If they went up and down by 200,000 a year, would we know it?

Mr. PAISLEY. It would depend on which elements went up or down. [Deleted.]

#### *Sources of Data*

Mr. COLBY. The budget released in December of each year is the only official statement made by the U.S.S.R. on defense spending. The figure announced is not a useful indicator of either the level or trend

in defense spending, however, as its coverage is not known and may change from year to year without explanation. Moreover, military research and development is not in the announced budget.

### *CIA Cost Estimates*

Because the Soviets regard actual levels of military spending as a state secret, CIA estimates of this spending are largely arrived at by a direct costing method. This procedure involves identifying Soviet military programs, estimating the magnitude or the quantities involved in each program, and then applying estimated individual prices to each quantity. All Soviet military activities other than the military research and development figure are estimated by this procedure, and are thus independent of the published defense spending figure.

We estimate that Soviet expenditures to support this military effort amounted to at least 25 billion rubles in 1973.

Chairman PROXMIRE. What is the ruble equivalent to a dollar?

Mr. COLBY. Well, that is a total artificial relationship, and I will show you in equivalents that we have here. Given the possible range of error in the estimates of both defense spending and GNP, the defense share of GNP probably lies between 6 and 10 percent.<sup>1</sup>

The level of the Soviets' military activity has been increasing steadily since 1960. They have added about a million men to their armed forces and deployed a number of new weapons systems for both strategic and general purpose forces. The trend in ruble expenditures during this period, as you can see from this chart, has been generally upward, increasing at an average annual rate of about 3 percent.

Senator SCHWEIKER. What is the level? The million men takes them up to what level of military manpower?

Mr. COLBY. To about 4 million.

You will note, however, that for the last few years ruble spending has remained at essentially the same level. I will explain why this is so in a moment.

The shares of total expenditures devoted to investment, procurement of hardware and construction of facilities, and military research and development, as well as space, have changed significantly over the years.

#### EXPENDITURES FOR MILITARY INVESTMENT

Expenditures for investment have dropped from about 40 percent of total expenditures in 1960 to around 20 percent in 1972.

Chairman PROXMIRE. What is military investment? Would that include equipment?

Mr. COLBY. That is equipment. That is equipment and facilities.

Chairman PROXMIRE. Ships, tanks, planes, missiles and all that?

Mr. COLBY. Right.

This drop reflects the completion of a number of major strategic programs begun in the 1950's and early 1960's.

On the other hand, military research and development and space expenditures have increased during the same period, from about 15 percent of total expenditures in 1960 to over 30 percent in 1972. These

<sup>1</sup> See chart entitled "Estimated Soviet Expenditures for Defense," p. 68.

increases clearly were connected with the several new strategic systems now in development, and which were tested in the last 9 months.

Now, these are Soviet flight tests, as you can see, on the four new missile systems we have been talking about, the test period began to intensify in the latter part of last year, and it is continuing now. [Deleted.]

Chairman PROXMIRE. I see.

#### EXPENDITURES FOR SPACE

Mr. COLBY. The largest percentage increase was observed in expenditures for space, which rose from about 2 percent in 1960 to over 11 percent in 1972.

The leveling off of ruble spending in the last few years that I just referred to reflects the fact that the U.S.S.R. has been between major strategic procurement cycles. Since 1969 military research and development expenditures for strategic systems have increased rapidly, while expenditures for strategic investment have been declining.

Chairman PROXMIRE. Well, that increase in space is very significant, from 2 percent to over 11 percent?

Mr. COLBY. Yes.

Chairman PROXMIRE. Do you have any breakdown at all to show the part of that that is military and the part that is not?

Mr. PAISLEY. That is very difficult to determine, sir, in all cases, because we do not have a good idea of what the purpose of all of their space activity is. We know some that are clearly military; we know some that are clearly associated with activity which in this country would be classified normally as civilian, but there is a grey area that we cannot determine.

Chairman PROXMIRE. For example, they do have some exploration of the Moon and that sort of thing.

Mr. PAISLEY. Yes, sir.

Mr. COLBY. Now, you know, they have had a terrible time on their civilian space program, and they have had some very bad, bad experiences I mean, a whole string of them have not worked. They lost the astronauts and they put things on various planets that have not worked, and all the rest of it. And we think, as a conclusion, that they put their primary effort in the military arena, although their civilian space programs are given high public visibility.

Chairman PROXMIRE. In other words, they are including all of their effort in here, and the 2 to 11 percent increase, you think is very largely a military increase.

Mr. COLBY. Yes, but a lot of it was construction of facilities that have dual purposes, and it is difficult to separate launch pads and things like that into military and civilian facilities.

Chairman PROXMIRE. They can be used for either one.

Mr. PAISLEY. We think the most dynamic aspect of their space program is the military at the present time.

Mr. COLBY. We expect that production of the new strategic systems now under development will begin this year, and will cause Soviet investment expenditures to reverse this downward trend.

## DEFENSE OUTLAYS ESTIMATED TO INCREASE IN 1974

The U.S.S.R. recently announced that defense spending would decline by about 1 percent in 1974. We regard this announced cut as largely a political gesture related to Soviet proposals at the U.N., MBFR, and SALT, rather than an indicator of actual spending. The Soviets apparently want to convey the impression to domestic and foreign audiences that the U.S.S.R. is confident that continued progress will be made in détente with the United States.

Actually, we estimate, on the basis of observed and projected changes in military and space programs and forces, that there will be an increase in Soviet defense outlays during 1974.

Chairman PROXMIRE. Of roughly what magnitude? Any notion?

Mr. PAISLEY. Roughly 3 to 4 percent.

Chairman PROXMIRE. Three to 4 percent? They say a 1-percent decline, and it is actually a 3- or 4-percent increase.

Mr. COLBY. It has been roughly—the total has been roughly on a level head the last 3 or 4 years. We do estimate it will resume at 3 or maybe even a little above that in this case.

## MISSILE PRODUCTION

Chairman PROXMIRE. Are you going to get into the missiles they will produce in this case as a part of this?

Mr. COLBY. It will be those four missiles. I can tell you about that.

Chairman PROXMIRE. Are they going to go ahead with the four missiles?

Mr. COLBY. [Deleted.]

Chairman PROXMIRE. OK.

## MILITARY R. &amp; D.

Mr. COLBY. Military research and development is the only category of spending that can be approximated through analysis of published Soviet financial data. Most research and development expenditures are funded under the science category of the state budget.

Soviet budgetary literature describes this account as a source of funding for projects of national importance, and specifically includes defense related research and development. We believe that space and military R. & D. take up most of the allocation for science in the state budget. Some other activities, such as the SST and civil nuclear energy and other nonmilitary activities, are probably also funded under this account.

Chairman PROXMIRE. You do include the SST as part of the rubles.

Mr. COLBY. No, that is in the civilian science account.

Mr. PAISLEY. We have tried to net out civil nuclear energy and the SST as nonmilitary R. & D.

Chairman PROXMIRE. Well, what percentage of the science account goes in the military?

Mr. PAISLEY. Something on the order of 60–80 percent, I believe.

Mr. DIAMOND. Including space, about two-thirds in the last decade.

Chairman PROXMIRE. About two-thirds or a little more. OK.

## ESTIMATES OF DOLLAR COST OF SOVIET DEFENSE

Mr. COLBY. You will note that we have thus far limited our discussion of Soviet defense spending to ruble terms, that is, how the Soviet leaders would view the effort. We also make estimates of the dollar cost of Soviet defense programs. For this purpose the Soviet force is considered to be an alternative U.S. force, so that the calculation measures what it would cost the United States to purchase and operate the existing Soviet military establishment. Now, this is not a direct exchange rate program. We have costed the various Soviet activities as though they were produced and paid for in America, and this is the only sensible way we have been able to find that we have been able to run a comparison.

*Weaknesses in Estimates*

Chairman PROXMIRE. Just one more point before you go on. You would concede that none of these measures, including this one, gives you a real precise answer—it is just another measure that you throw in but you would not on this basis say that you have got a solid comparison. You can compare—

Mr. COLBY. We have got the best comparison we can come up with, and it has its weaknesses, and we are quite willing to admit that.

## APPROACH TO HEALTH COSTS COMPARED

Chairman PROXMIRE. With the health budget, do you strike a mean between the ruble and the dollar?

Mr. DIAMOND. Yes.

Chairman PROXMIRE. Why can you not do the same thing here?

Mr. COLBY. Because the costing is so different, the costing problems are so different here. In the health thing, if you started to compare it, I think you would come up with quite a different set of comparative figures, and what you are really after in the health thing is how much is it costing them, not how does it compare to ours. That is not the real problem. Whereas this is always a great question, How is it compared to ours?

## ALLOCATIONS TO MEET U.S. THREAT

Chairman PROXMIRE. Both the Soviet Union and the United States have problems with China. Now, my instincts, and they could be wrong, their problem would show up as more of a claim on their military resources than our problem would on our military resources. If that is the case, can you allocate the resources that they apply to meeting the so-called U.S. threat, if they would look at it that way, not that we—say, compared to the amount that we put into meeting the Soviet threat. They have got a big eastern front.

Mr. COLBY. [Deleted.]

Chairman PROXMIRE. On that basis, did you come to a conclusion, or will you tell us that as we go ahead?

Mr. COLBY. No, I do not think we have that kind of monetary conclusion. We do obviously follow the force confrontations.

Chairman PROXMIRE. It is conceivable that you might accept this, that they are now devoting a greater absolute amount than we are to defense, and yet they might be devoting substantially less to counteracting us than we are to counteracting them.

Mr. COLBY. Until very recently, a very substantial amount of our outlays was the South Vietnamese war that took up a great deal of our budget.

Chairman PROXMIRE. Of course, it does not take up anything like the proportion any more, does it?

Mr. COLBY. No.

Chairman PROXMIRE. All right, sir.

#### DOLLAR EVALUATIONS

Mr. COLBY. These dollar valuations, then, provide a rough measure of the size of the Soviet programs.

The dollar equivalent, for our estimate of about 25 billion rubles for the total Soviet defense effort in 1973, works out to be over \$80 billion.

From the late 1950's until 1970, U.S. defense outlays exceeded the estimated dollar cost of the Soviet effort. Since 1970 the Soviet effort, measured in dollars, has exceeded that of the United States. This catching up is a result of steady increases in Soviet spending, while U.S. spending, measured in constant prices, declined.

#### STRUCTURE OF DEFENSE EFFORTS

In terms of the structure of the defense efforts measured in dollars, the United States and U.S.S.R. present a similar picture. In 1973 the amount of resources allocated to the procurement of weapons and facilities was about the same. The dollar value of Soviet spending for operating their forces exceeded U.S. expenditures slightly.

#### MILITARY MANPOWER

Measured in dollar terms, Soviet resources devoted to active military manpower were over \$35 billion, exceeding the U.S. figure by over \$10 billion. This difference, which may seem surprising considering the low pay of the Soviet conscript, results simply from applying U.S. pay scales to the larger number of men in the Soviet Force. In other words, again, note that this is not a ruble expenditure. This is what it would cost the United States to run a force like that.

Chairman PROXMIRE. I cannot understand why it would not be a whale of a lot bigger in view of the fact that they have got about 4 million compared with something on the order of 2.5 million for the United States.

Senator SCHWEIKER. It would be if it were percentagewise.

Mr. COLBY. Well, this is percentage, both percentage and absolutes.

Chairman PROXMIRE. You see, if you take 4 million and you give them U.S. pay all the way up and down—

Mr. COLBY. But, you know, our whole structure—now, this includes operating expenses and not just pay.

Chairman PROXMIRE. The biggest part of operating expenses is pay. It is more than half, substantially more.

Senator SCHWEIKER. Well, when you say 25 percent of their budget say is made up of military pay and 50 percent of our budget is military pay, I am confused in the difference in operating definition. What else is in there, operating, besides pay? There must be some other big factor.

Mr. COLBY. The cost of operating, the materials, the fuel, all the rest of it, the various kinds of things that you use when you operate.

Chairman PROXMIRE. But the biggest by far is pay.

Mr. PAISLEY. Pay and allowances.

Mr. COLBY. Yes, on both sides, yes.

Chairman PROXMIRE. That is why I cannot understand why in view of the fact they have got 60 or 70 percent more men, why they have not go—

Senator SCHWEIKER. Their pay costs are 25 percent and ours are 50 percent. That is what I do not understand.

Mr. PAISLEY. Their operating ratio would be much higher if they operated their forces as we do. That is, the operating portion is about one-third of total operating costs. Two-thirds is direct manpower-related pay and allowances. The one-third that is operating cost includes POL consumption and the cost of moving their forces around and conducting exercises. Also, I would point out that the 25-percent figure you referred to represents the share of military expenditures—in rubles—devoted to military pay and allowances. The dollar valuation of Soviet military forces—with U.S. military pay scales—yields a higher figure, something like 40 percent.

#### *Operations and Maintenance Costs*

Mr. COLBY. This perhaps can help you out on this, Mr. Chairman. The 1972 figure for the operating costs here in the United States, the total is \$45 billion, broken into about \$23 billion for military personnel, and \$21 billion for operations and maintenance. On the Soviet side the military personnel is about 70 percent of the total. About \$35 billion of operating costs is for military personnel and \$14½ billion is operations and maintenance. So a very substantial amount—about 70 percent—of Soviet operating costs are for military pay, as compared with 50 percent for U.S. military pay when both are measured in dollar terms.

Chairman PROXMIRE. Is this because we have the higher amount of indirect and military support?

Mr. COLBY. No, it is because they have got that extra million and a half men.

Chairman PROXMIRE. I know, but therefore theirs ought to be higher. I am trying to find out why ours is so high.

Mr. PAISLEY. They operate their forces, even though they have larger forces, they operate them at less intensity. The navy, for example, stays at anchor a lot, even though it is in the Mediterranean. They stay at anchor a lot more than they sail.

Mr. COLBY. [Deleted.]

Chairman PROXMIRE. How about their troops? Do they go on maneuvers and so forth?

Mr. COLBY. They do have maneuvers. They do have annual ones. I do not think they do as much as we do, frankly.

Mr. PAISLEY. In all of their forces, they operate much less extensively. Their flying hours per man is only about half that of U.S. training. They exercise less also.

Chairman PROXMIRE. For the record can you give us a breakdown of the operating costs for us and them?

Mr. COLBY. I think I read it, but I will make sure it is in the record.

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

COMPARISONS OF UNITED STATES AND SOVIET MILITARY OPERATING COSTS<sup>1</sup>

[In billions of U.S. dollars]

	U.S.S.R., 1972	United States, 1972
Direct personnel cost.....	35	23
Other operating costs.....	14½	21
Total.....	50	45

<sup>1</sup> Totals do not add because of rounding.

MILITARY R. & D.

Mr. COLBY. The estimated dollar cost of reproducing the Soviet R. & D. effort also was higher than that of the United States in 1973. While the comparison between the dollar values of Soviet and U.S. spending reflects levels of effort, I should point out that the mere level of spending is not a good measure of military capabilities and that equal levels of effort do not necessarily result in equal effectiveness of troops or equipment.

*Net Assessment*

Chairman PROXMIRE. Well, before you conclude this section, that is a fascinating thing you have just said, before you conclude. Do you have any measures of effectiveness?

Mr. COLBY. Well, you get into the whole morale effect, the staff strategies.

Chairman PROXMIRE. Well, do you have any objective indication that our capability is less or more than theirs?

Mr. COLBY. Well, what are you talking about is what we call the net assessment business, Mr. Chairman, and we in the intelligence business traditionally have tried to limit ourselves to a report and an evaluation of what the other side looks like. What we do becomes a policy question. How we run our forces, how we organize them becomes an internal American decision, and then the netting out is something that we participate in but we do not run as a separate intelligence function by itself.

Chairman PROXMIRE. In this comparison we spend substantially more on education than they do. They are doing very well, but we still spend a great deal more. We put enormous stress on vocational education and on higher education. Maybe I have come to the wrong conclusion but it is my understanding, in view of the volunteer Army and

the much higher pay that we have had lately, that we are attracting people with better morale, maybe somewhat higher skills, less turnover, and it may be that our individual soldiers, sailors, marines, officers, and so forth have somewhat higher skills and therefore are somewhat more efficient than theirs are.

Is there any way that this can be appraised at all, or evaluated?

Mr. COLBY. Well, we obviously spend quite a bit of effort trying to do this. We for instance have participated with the Pentagon in some rather careful discussions on the recent war experience in the Middle East and then on an evaluation of Soviet tactics, because this is real Soviet tactics, and what kind of tactics did it amount to, how did they use their artillery, their infantry, and all that sort of thing. We do a great deal of that.

The net assessment of that is a function which is in the Defense Department now, in which you put the intelligence input, you put the American side of the equation, and you put the cost factors, and you have to resolve the dilemma created by those three elements of the equation, and come up with a total defense plan and a total defense budget, obviously.

#### UNITED STATES AND SOVIET MILITARY R. & D. COMPARED

Chairman PROXMIRE. By far the biggest difference was on research and development. They appear to be spending substantially more than we do, maybe 50 percent more, not quite 50 percent more, but 30 percent more, and there it would seem to me that it is extraordinarily difficult to judge the performance. By and large, in every other sector, as you have shown so well and documented so thoroughly, we were ahead of them in applications of research. We certainly are in agriculture; we seem to be in industry. Our industrial workers are twice as efficient as theirs. Our farm workers are 10 times as efficient as theirs. It would seem that although they may be applying more in the research area, it may be that their output is no greater or maybe less, or maybe more.

Mr. COLBY. Yes, it very easily could be. Some of their missile systems, for instance, they obviously are behind us on the multiple independently targeted reentry vehicles. The Soviets are behind us. We have had those for years.

Chairman PROXMIRE. Are there any areas where they are obviously ahead of us?

Mr. COLBY. There are some things they are doing that we are not doing. [Deleted.]

Chairman PROXMIRE. Now I can see the figures more clearly. They have almost 25 percent more, it is \$12.5 billion compared to almost \$10 billion for us. Is that right?

Mr. COLBY. Yes.

Chairman PROXMIRE. Well, that kind of a difference, it is a difference which is recent.

Would that be affected by the strategic arms limitation talks or not?

Mr. COLBY. No, it has not been.

There are certain things excluded under the SALT agreement: we are not supposed to test SAM's in an ABM mode, for example and a

few things like that. So they have not spent that kind of money. They have spent it on something else.

Chairman PROXMIRE. How do you arrive at that 12.5? How do you measure it?

Mr. COLBY. You take a look at what we think their research and development expenditures mean, what are they? I mean, what are the space research facilities, not the silos for the operational missiles, but the test fields, the factories producing this kind of thing, the laboratories, to the extent that we can find them, and so forth, and we cost those as though they would be spent and bought and built in the United States.

Mr. PAISLEY. That is the way we check the basic figure, Mr. Colby. The initial figure is arrived, as was explained in the Director's statement, through the analysis of the Soviet budget.

Mr. COLBY. That is right in the R. & D. field. Excuse me.

Mr. PAISLEY. That is right, because in the R. & D. field, so much of the activity, such a large portion cannot be identified until it gets to the final test and evaluation phase. Once we see it in the test and evaluation phase, such as these four major weapons systems you saw depicted on the screen, we know that that research and development had to have begun much earlier, and that is why we say the upsurge in activities we are now seeing probably has not been materially created, caused, or influenced by the strategic arms limitation talks.

Chairman PROXMIRE. They do not publish these figures, do they?

Mr. COLBY. They publish the overall science figure in their budget.

Mr. PAISLEY. They publish the science figure, but we have to analyze it to try to pull out—

Chairman PROXMIRE. Is that the fundamental bedrock on which you then compute this \$12.5 billion?

Mr. PAISLEY. Yes, sir. We have to try to net out that portion of the total which is civilian.

Chairman PROXMIRE. What makes you think they would not try to exaggerate or brag up this one and use this to impress their satellites and so forth?

Mr. PAISLEY. Well, they are proud of their science activity. They are proud that this is a scientific economy and a scientific nation and a scientific philosophy. We have not been able to detect a deliberate distortion of this kind of budgetary data.

Perhaps Mr. Diamond could—

Mr. DIAMOND. It seems internally consistent in a global budget setting of revenues and expenditures, and we think we can trace a good part of the civilian action. [Deleted.]

What we cannot clearly trace is the military component. So to that extent, they could fudge.

Chairman PROXMIRE. In their research and development it seems to me we have to judge it pretty much by results, and it does take time. It takes maybe 2 or 3 years or maybe a little more, sometimes quite a bit more before it is translated into procurement. But when you come to the quality of submarines, for example, the speed, the reliability in missiles, MIRV'ing, the breakthrough in almost all these areas we seem to have been ahead. I do not want to be overconfident, maybe we're behind, but it seems we are consistently ahead.

Now, is this a remarkable difference that we see here? Is there any way that we can interpret this as meaning they may be forging ahead? [Deleted.]

Mr. COLBY. Well, there is a lot of experimenting over there. [Deleted.]

Mr. DIAMOND. But these are R. & D. inputs. They are not output. We do not have a measure of their productivity.

Mr. COLBY. Yes, this is input, and you will not find that figure, you will not find the \$12.5 billion. That is a dollar figure. You will not find that figure which, taking the ruble figure, try to scrub it, try to straighten it out and then cost it in dollars.

#### SOVIET IMPORTS OF MILITARY TECHNOLOGY

Chairman PROXMIRE. Earlier you made to me what was one of the most shocking revelations I have heard in a long time when you said that from Western sources they are able to buy for the military some useful equipment.

Now, part of that would be procurement. Part of that might be in research and development. I imagine they use their computers in research and development a great deal.

Mr. COLBY. [Deleted.] Their people come over and go through the XYZ factory, for instance, and then ask some very penetrating questions.

Chairman PROXMIRE. Can you estimate how much of each, R. & D. and procurement, is secured from western sources?

Mr. PAISLEY. Well, Senator, I think you may have received a misimpression from me. It is not a large quantity and it is not direct military equipment. It is technology that in the West is in the civilian economy, but it is of a quality that is higher than the Soviets have available in either their civilian or the military economy.

Chairman PROXMIRE. Yes, but you used the term military there in your presentation.

Mr. PAISLEY. The equipment is civilian equipment in the West, but it is reverse engineered for military applications in the U.S.S.R., and if I used the term military in relation to the original equipment that was an error.

Chairman PROXMIRE. You say in your prepared statement, "In some military fields, the results of this reverse engineering have been good."

Mr. COLBY. On their military. In other words, the results on their military have been good.

Chairman PROXMIRE. So they might not only buy computers, machine tools and a number of other things, photographic equipment and so forth that they apply in the military area and so forth, is that it?

Mr. COLBY. Yes.

Chairman PROXMIRE. It is not big in terms of dollars?

Mr. PAISLEY. No, sir.

Chairman PROXMIRE. Maybe 5 percent?

Mr. PAISLEY. Oh, much less. It is infinitesimal. They will buy a single item and will reverse engineer it so they can learn how to build it, and then they will build it and apply those techniques to their own

weapons systems. But it is not a question of being dependent, having their own military procurement dependent on foreign sources of supply. That is just not done. And that is perhaps where the misimpression was obtained.

*Military R. & D.*

Chairman PROXMIRE. By and large the SALT talks are aimed at the second item you have got there, procurement rather than R. & D. are they not, although they can reach—

Mr. COLBY. That is right essentially, yes.

Chairman PROXMIRE. You said that there was some influence from R. & D. testing some of the systems.

Is there any action that we can take to prevent an arms race in R. & D. which it seems to me is eminently more dangerous than procurement?

Mr. COLBY. There are possibilities, I suppose, of agreeing to suspension of some R. & D. activities which can be monitored and verified. The atmospheric nuclear test ban treaty, for example, has prevented that sort of testing and has held down one element in the R. & D. race. Now, they still go in for underground tests, of course.

[Deleted.] I think the Soviet R. & D. effort reflects, Mr. Chairman, this drive to just become more modern and more technological. It pervades the society. They feel they have got to come up and catch up with the West.

Chairman PROXMIRE. This is the same application in the military that they have got in the industrial and other areas?

Mr. COLBY. It is an application, and obviously in Soviet terms, the military is No. 1.

*Soviets Trying To Catch Up To United States*

Chairman PROXMIRE. Well, that implies that they are behind in the military in the application of their past research and development, and they are trying to catch up. Is that it?

Mr. COLBY. That is true. The complexity of their missile systems, their accuracies, their various other things, have traditionally been behind ours. There is no question about that, and they are just driving to try to catch up.

ESTIMATES OF UNITED STATES AND SOVIET SPACE SPENDING COMPARED

Chairman PROXMIRE. Do the U.S. figures include our civil space program, the R. & D.?

Mr. PAISLEY. No, they do not.

Chairman PROXMIRE. They include our military space program but not our civilian space program in NASA?

Mr. PAISLEY. Yes, sir.

Chairman PROXMIRE. But you include all space on the Soviet side.

Mr. COLBY. No, sir, we scrubbed out what we could.

Chairman PROXMIRE. The Shuttle, for example, they tell us—we just had hearings. I happen to be Chairman of the subcommittee that handles the space budget. They told us that they expect about a third of the use of the Shuttle would be by the military.

Did we apply that in our part of the military, a third of the Shuttle cost?

Mr. PAISLEY. No, I was not aware of that information, sir.

Mr. COLBY. I think we did not cover it at all.

Chairman PROXMIRE. Well, the Defense Department differs on that. They are a little lower; 29 percent.

Mr. COLBY. I would doubt that we had the Shuttle in there at all because it is a NASA program, and we would automatically leave them out. I mean, we are trying to get comparable things here.

Chairman PROXMIRE. That is going to be—of course, they expect it to cost, including total operating cost over the terms, to be about \$49 billion, and that is the present cost, and the ultimate cost with overruns and inflation is going to be, God knows, \$100 billion.

Mr. COLBY. Of course, you are going ahead. This is looking backward.

Chairman PROXMIRE. That was just a suggestion for your information.

There was military expenditure in NASA in 1972, some, but you did not include any of that.

Mr. PAISLEY. If we could identify it as a military related activity, we would and we do work closely with NASA. I do not know in that particular year whether we did have a NASA amount.

Chairman PROXMIRE. Would you modify that in any way if you included everything that has military implications in the NASA budget? Would that increase the 9.9 significantly?

Mr. PAISLEY. I do not know what level we are not including. I am not familiar with the programs that you are referring to, that may have military applications other than the Space Shuttle which you just mentioned.

Chairman PROXMIRE. We are getting a list right now from NASA on some of the supersonic technology and so forth, for example. We will provide you with that.

Mr. COLBY. We would be very interested.

Chairman PROXMIRE. They justify that strictly on military because we have no supersonic commercial prospects at all.

How about the military applications of the space program? After all, a great deal of that, the research and so forth, is done to give us the capability with respect to satellites and so forth. They might have great military implications.

Mr. COLBY. Well, certainly we have had a tradeoff. We have benefited on our side from the space program in various respects, but I think our estimate on the other side is that the military side of it drives and has the priority on the Soviet side. The civilian side—

Chairman PROXMIRE. Are we pumping into their budget part of their efforts in space to make them look like a world leader, a technological leader, that has some military implications and we do it for the same reason but not including it in ours?

Mr. COLBY. I think we tried to pull those out of it.

Chairman PROXMIRE. Pull them out on both sides.

Mr. COLBY. Yes; there are tradeoffs and side benefits.

Chairman PROXMIRE. Do they have a separate agency in the Soviet Union that runs the space program like we do?

Mr. PAISLEY. We doubt that they have a program that splits the military and civilian. Most of the activities that we know of appear to be carried out at military facilities.

#### *Procurement*

Chairman PROXMIRE. The other difference here is in procurement. That's something new, too, for them to be ahead of us in procurement, I take it.

Mr. COLBY. We are about even on procurement.

Chairman PROXMIRE. They are a little bit ahead of us. They are \$18.5 billion and we are \$18 billion. But they are a little bit ahead of us.

Mr. COLBY. But remember, they have to procure for this force, too, in tanks, trucks, things like that.

#### *Operations and Maintenance*

Chairman PROXMIRE. Now, from the standpoint of operations and maintenance, we spend a good deal more than they do, except for the fact that they have more people.

Mr. COLBY. Right.

Chairman PROXMIRE. OK. Fine.

Go ahead.

Mr. COLBY. [Deleted.]

Chairman PROXMIRE. [Deleted.]

#### CHINESE ECONOMIC GROWTH

Mr. COLBY. Mr. Chairman, you asked that I also cover the Chinese economy, and single out the expenditures for military purposes. I propose first to discuss the general state of the economy, and conclude with the issue of military expenditures.

Since the Communists came to power in 1949, China's economic growth has been strong but erratic.

China's GNP has grown by 4 percent annually, reaching a level of roughly \$170 billion in 1973, less than 15 percent of U.S. GNP. Per capita GNP of \$190 is only 3 percent of the U.S. figure.<sup>1</sup>

National output, which rose sharply in the 1950's, plummeted in the early 1960's following the disastrous "Leap Forward," 1958, to 1960. In 1966, just as momentum had been regained, Mao unleashed the cultural revolution, and production again declined. Since 1968, the economy has been growing steadily, and the latest ideological rumble, the anti-Confucius campaign, so far has had no noticeable effect on output.

Though still a poor country, the People's Republic of China can boast of many achievements, including: provision of adequate if austere amounts of food and clothing for 900 million people.

#### *Source of Data*

Chairman PROXMIRE. How accurate is that?

Mr. COLBY. Well, we base it on the 1953 Chinese census of 583 million, and an average annual growth rate of 2.2 percent.

<sup>1</sup> See chart entitled "China: GNP," p. 70

Chairman PROXMIRE. Have they been trying to hold down their birth rate?

Mr. COLBY. There have been some steps in that regard, but we do not think that they are all that effective.

Mr. ASHBROOK. That is right. During this period of time there have been three separate population control campaigns which have coincided with moderate economic policy. Ideologically, a birth control campaign is suspect. It is bourgeois thinking, and under the socialist system, more people are more producers. But they are now trying. You know, they readjusted their thinking and they are putting in a campaign, but it has not had appreciable demographic impact.

#### INDUSTRIAL PRODUCTION

Mr. COLBY. The other achievements, production of modern military equipment including nuclear weapons, jet aircraft, and strategic missiles; production of a wide and growing variety of industrial goods; expansion of petroleum output from near total dependence on imports to a growing surplus for export; extension of railroad lines through some of the world's most difficult terrain.

Nevertheless, China lags 5 to 20 years or more behind the other large industrial nations in various branches of technology. Although China has been outdistancing other less developed countries such as India, Pakistan, and Indonesia, it is not gaining ground on the fast moving, high technology nations such as the United States and Japan.

Until 1962, China's leaders stressed heavy industry and defense at the expense of agriculture and consumer welfare. Industrial production has grown by about 8 percent per annum compared to 2 percent for agriculture.<sup>1</sup>

After the disaster years of 1959 to 1961, when China was brought to the verge of starvation, the regime shifted to an agriculture first policy. The modern sector of the economy began to supply agriculture with increasing amounts of chemical fertilizer, pesticides, pumps, seeds, trucks, and farm machinery.

Investment in industry reflected the new policy. Most notably, China in the past 2 years has contracted to buy more than \$1 billion worth of fertilizer and synthetic fiber plants to strengthen agriculture.

#### SLOWDOWN IN MILITARY EXPENDITURES

Concurrently, there appears to be some slowdown in military expenditures and increased emphasis on consumer goods. Also, to give a fillip to industrial modernization, China has relaxed its policy of avoiding foreign debt by arranging to finance industrial plants through deferred payments.

When we look at the Chinese economy sector by sector, it is apparent that agricultural production and its relation to population is still the basic problem. Some steps have been taken to ease the pressure on agricultural production.<sup>2</sup>

<sup>1</sup> See chart entitled "China: Agricultural and Industrial Production," p. 71.

<sup>2</sup> See chart entitled "China: Grain Production and Population," p. 72.

## AGRICULTURE

China's population is about 900 million and is continuing to grow by about 2 percent per annum. Available arable land is already being cultivated, so major additions to output must be derived through increases in yields. Large investments in fertilizers, water control facilities, and research are needed.

Though domestic fertilizer production, both from modern and local plants, has been rising rapidly, the regime has opted for a rapid boost in output by importing large fertilizer facilities from the United States, Western Europe and Japan.

So far, the Chinese have ordered 13 urea plants which will increase urea production eightfold over present levels when they come on line in the late 1970's.

Large investments in synthetic fiber plants are aimed at relieving the pressure on agriculture to provide additional natural fibers at the expense of grain.

Considerable investment also has been made in water conservation, mostly in small projects in the south. In north China, major new investments will be required to provide large-scale irrigation systems.

## FOREIGN TRADE

In the meantime, China is spending large amounts of foreign exchange on grain and cotton. 7.5 million tons of grain, valued at \$750 million, were imported in 1973. Cotton imports also rose sharply to \$350 million in 1973.<sup>1</sup>

## ENERGY RESOURCES

As for industry, China has vast resources of most raw materials, and industrial output is growing rapidly. Energy resources are no problem. Coal and hydroelectric resources are huge, and petroleum deposits appear to be abundant. Recent development policies have emphasized petroleum, while coal and electric power are falling short of needs.

Petroleum output exceeded 50 million tons, one million barrels per day, in 1973, enough to meet domestic needs at the present level of industrialization and allow for exports of about one million tons to Japan. Production from land fields is being developed rapidly, but offshore exploitation will require further imports of expensive exploration and production equipment. Large investments in pipelines, railroad cars, port facilities, and tankers also will be needed to distribute the growing volume of petroleum.

Coal mining is being expanded with imported equipment, and electric power production is being strengthened by imported gas turbines, steam turbines, and boilers, as well as by expanding domestic production of generators and other electrical equipment. Steam power technology is far behind that of the West, and only a small portion of China's vast hydroelectric potential has been tapped.

<sup>1</sup> See chart entitled "China: Imports of Grain, 1968-73," p. 73.

## METALS

Though considerable progress has been made in metallurgy, particularly steel, China is still a net importer of metals. Crude steel production, estimated at 25 million tons in 1973, was supplemented by imports of 3 million tons of high quality finished steel. Both the raw material and finishing sectors are lagging. China is importing increasing quantities of iron ore, steel scrap, and pig iron, and has recently negotiated for a \$400 million steel rolling plant from Japan and West Germany.

Imports of copper and aluminum are rising because China has failed to add new capacity as needed. China also imports lead, zinc, nickel, platinum, chromium, cobalt, and other metals while exporting tungsten, antimony, and tin.

## TEXTILES

China is one of the world's largest cotton textile producers. Nonetheless, production barely keeps pace with population growth. Cloth rationing is still an essential economic measure.

## MACHINE TOOLS

Despite striking gains in the production of machine tools and other types of machinery, many varieties and sizes are still lacking. Large quantities of advanced production equipment must still be imported to avoid reduced growth rates and large technological gaps.

## TRANSPORTATION

In the field of transportation, the Chinese have proven adept at building railroads and highways in mountainous terrain. They have also developed a small transportation equipment industry that produces railroad equipment and trucks. Nevertheless, primitive forms of transport still handle most local traffic.

Large quantities of transport equipment, including trucks, ships, commercial aircraft, and diesel and electric locomotives have to be imported.

## FOREIGN TRADE

The patterns of foreign trade shifted radically following the withdrawal of Soviet technicians in 1960. As you can see on this chart, in 1959 the trade was at a ratio of 70 to 30 percent in favor of Communist countries. Since 1965, the figures have been reversed.<sup>1</sup>

Although foreign trade is only a small component of China's economy, it has been shooting up in recent years. Total trade jumped from \$4.3 billion in 1971 to \$8.5 billion in 1973. At least half of this increase probably is accounted for by revaluation of world currencies and worldwide inflation.

Major exports are textiles, foodstuffs, and raw materials. Imports, I have already mentioned, feature grain, fertilizers, machinery, and metals.<sup>2</sup>

<sup>1</sup> See chart entitled "China: Foreign Trade, 1957-72," p. 74.

<sup>2</sup> See chart entitled "China: Commodity Composition of Trade, 1973," p. 75.

## TRADE WITH SOVIET UNION AND UNITED STATES COMPARED

Trade with the United States jumped from \$110 million in 1972 to \$860 million in 1973.

Chairman PROXMIRE. How does it compare again with our trade with Russia?

Mr. DIAMOND. Machinery orders are \$500 million in 1973. Total exports to and imports from the U.S.S.R. were about \$1.4 billion.

Chairman PROXMIRE. So China is about half of what it is with the Soviet Union. That is remarkable when you consider the fact that China is so much smaller than the Soviet Union in GNP and domestic production.

Thank you.

Mr. COLBY. The United States was second only to Japan in China's foreign trade. The United States shipped nearly \$800 million worth of goods to China, including wheat, corn, cotton, soybeans, aircraft, and metal scrap. In return, the United States bought \$65 million worth of Chinese silk, pig bristles, fireworks, cotton fabrics, carpets, tin, and antiques.

In 1973, China contracted for \$1.2 billion in whole plants, mainly chemical fertilizer and artificial fiber plants. Medium term credits are being used to finance about two-thirds of these contracts.

## PROSPECTS OF GROWTH

When we look at the mid and long range prospects for the Chinese economy, we believe that GNP should continue to grow by 4 to 5 percent annually. Such a growth would be sufficient to support continued expansion of industrial capacity, to supply the population at slowly rising levels of well-being, and to improve the inventory of modern weapons available to the Armed Forces.

The political campaign against Lin Piao and Confucius, however, should warn China watchers against facile straight-line projections of economic policy and growth prospects. Nevertheless, periods of political turbulence probably will have a smaller impact than in the past, because Communist economic organizations, controls, and priorities will be more resistant to change.

The pressure of population against the means of subsistence should gradually be relieved by the growth of national output and, over the long term, by some successes in population control measures.

Industrial output should increase about 8 percent annually, and agricultural output 2 to 3 percent.

For the next 10 years or more, China will continue to benefit from its relative industrial backwardness by obtaining plant and equipment abroad on which R. & D. costs have been paid off and technical problems ironed out.

As for economic priorities in the future, agriculture should continue to receive extensive support from the industrial sector. In any case, steady increases in yields per hectare will be essential.

## FOREIGN TRADE

Chairman PROXMIRE. Let me just interrupt again. You said Japan is their principal trading partner and the United States is second.

Mr. COLBY. Second.

Chairman PROXMIRE. And you pointed out that their trade with Communist countries is less than it is with free countries. That is quite a turnaround from what it was 20 years ago, is it not?

Mr. COLBY. In 1955, oh, yes, certainly. I think this is one of the most interesting items, though, this turn toward the use of credit, because there was a period in which it was non-Maoist to take credit.

Chairman PROXMIRE. What I am trying to get at is the fact that we consider with some reason that the Communist countries act, if not as a monolith, they tend to act together, and they view us as the enemy. They do; a lot of the literature and so forth is that way. But if you look at the facts of life here, the hard, cold facts of trade, it appears that they are developing more and more dependence on the free world, and that this might be a consideration. In view of the size of Russia, the proximity of Russia, and the close ideological relationship that they have had in the past, this seems to me to be a very significant development here.

Mr. COLBY. Well, the real key occurred here at the time of the Sino-Soviet split. At that point their trade with the Soviet Union declined very sharply, and with Soviet Eastern satellite blocs.

Chairman PROXMIRE. How big is their trade with the Soviet Union? Is that most with the Soviet Union or is it with other Communist countries?

Mr. ASHBROOK. Sir, I think the total volume is about a quarter of a billion dollars but that is a very rough estimate.

Chairman PROXMIRE. In 1973, that is fascinating, they had about a third as much with the Soviet Union as they had with the United States.

Mr. ASHBROOK. That is right.

Chairman PROXMIRE. Well, isn't that something.

Thank you.

Mr. COLBY. Rising pressure from an increasingly literate and technically sophisticated population will probably focus more attention on consumer welfare.

In industry, technological improvements will be emphasized, though small, local plants will account for large portions of output of consumer goods, construction materials, and farm machinery.

In the field of foreign trade, China's oft-stated goal of self-sufficiency in industry and technology is not likely to be attained in the foreseeable future.

Peking must continue to rely heavily on Japan, Western Europe, and the U.S. for various types of high-technology equipment. The United States will have a particular advantage in the supply of civil aircraft, computers, communications equipment, oil exploration and drilling equipment, and specialized machine tools.

The United States will remain a major supplier of agricultural commodities, especially grain in poor harvest years, and cotton.

China, however, remembering its experience following the withdrawal of the Soviet technicians, will maintain a diversity of suppliers.

Finally, Peking will try to bring its U.S. trade closer to balance by modifying products to suit American tastes, and by expanding production of commodities with a ready market in the United States. Nevertheless, Sino-U.S. trade will continue to focus on U.S. exports.

I will conclude this prepared statement by discussing the Chinese commitment of resources to military programs.

#### RELATIVE SIZE OF CHINESE ECONOMY

Chairman PROXMIRE. Let me just ask you, is China the biggest Communist country economically, outside the Soviet Union, and if so, what is the third biggest?

Mr. COLBY. Yes. I think Poland would be next.

Mr. ASHBROOK. Well, sir, it would be computing aggregate versus per capita GNP, and aggregate GNP, I am almost certain it would be the biggest, but its per capita GNP is like one-tenth.

Chairman PROXMIRE. I know China's per capita GNP would be way down. I know their overall GNP was about the same as Italy.

Mr. ASHBROOK. It is now about \$170 billion, so I think the sheer weight of numbers would put that far ahead of any East European country.

Chairman PROXMIRE. Italy is West European, but you look at Italy. I think they were about 10th. They were about 10th. They were pretty far down. I am not sure that—China's GNP is probably bigger than Canada, although not much. One of the reasons I am bringing this up is that I think there is a great deal of outdated thinking that, because China is a huge country with the biggest population in the world by far, and because of our experience in the Korean War and in the Vietnam War, we envision China as a threat to the United States, and this is nonsense when we look at the size of their economy. It is ridiculous, like Italy being a threat. In my view they are a threat in the Far East. They are a threat if we are stupid enough to have a land war on the Asian continent, but except for that, they just do not have the wherewithal. They just absolutely do not. That is in my view.

Mr. DIAMOND. We have a measure in 1972 dollar value of the Chinese output falling between Italy and the United Kingdom, that is around \$140 billion, and the United Kingdom at \$152 billion, and Italy, \$112 billion.

Chairman PROXMIRE. Far less than Japan, of course.

Mr. DIAMOND. Japan, \$280 billion. That is right. It is about one-half of Japan.

Mr. ASHBROOK. Mr. Chairman, those figures he is quoting may seem lower, but we have had a substantial inflation and we are 1 year ahead.

Mr. DIAMOND. These are 1971 U.S. dollars.

Mr. ASHBROOK. And 1972 GNP figures, but we have got one more year of inflation and one more year of growth.

Chairman PROXMIRE. The fact is they have been growing about 4 percent, which is about the rate that everybody has been growing, and so there should not be that much difference. There should not be that much change.

Mr. ASHBROOK. China is in the 4 to 5 percent growth group. You have West Germany and Japan in the 10 percent group, West Germany not lately, but Japan.

Chairman PROXMIRE. And that—Russia and the United States have also been growing about the same.

Mr. ASHBROOK. At the 4-percent level.

Chairman PROXMIRE. All right.

#### CHINA'S DEFENSE PROGRAM

Mr. COLBY. Estimating the numbers of Chinese forces is difficult, but we believe they have nearly as many men under arms as the U.S.S.R. More than 80 percent of these military personnel, however, are probably assigned to ground force units. The number involved with advanced weapons, such as strategic missiles, supersonic aircraft and modern submarines, is small by either United States or Soviet standards.

#### *Lack of Published Data*

The Chinese are even more secretive about defense spending than the U.S.S.R.: they publish no information on their military expenditures. We have recently begun an effort, however, to estimate China's resource commitment to defense, employing methodologies similar to those used in estimating Soviet defense costs. The results of this effort are still preliminary, but a few generalizations appear to be valid.

The problem can best be approached by subdividing the question into two parts, defense operating costs and defense procurement costs.

#### *Defense operating Costs*

Defense operating costs would appear to have little impact on the economy, largely because of the extensive use of relatively unskilled manpower, which in China is certainly not a scarce resource.

#### *Procurement Costs*

Military equipment procurement costs, however, impinge directly and heavily on the country's modest industrial base. The term procurement as we use it here includes only the cost of actually producing arms and equipment and does not include any costs associated with research, development and testing programs. We have insufficient information to develop valid estimates of resources devoted to Chinese military research and development.

#### RELATIVE CAPABILITY WITH THAT OF THE UNITED STATES OR THE SOVIET UNION

Chairman PROXMIRE. You have insufficient information, but would it appear on the basis of our knowledge of the Chinese educational system and the number of scientists they have and research technicians of various kinds that they have a capability that is comparable in any sense with that of the United States or the Soviet Union?

Mr. COLBY. Oh, no, not at all. We do know that they have cordoned off a sector of their effort and have given it a protected status during these ups and downs of the cultural revolution. [Deleted.]

Chairman PROXMIRE. Thank you.

#### PROCUREMENT TRENDS

Mr. COLBY. According to our measures, over the past 10 years there has been a generally upward trend in Chinese military procurement, with two periods of rapid growth, each followed by a decline.<sup>1</sup>

Of particular interest are the two occasions when the Chinese reduced procurement. The first occurred in 1967 when the disruptions of the cultural revolution caused about a 12-percent reduction.

An even more drastic cut was made in 1972 when military procurement dropped by almost 20 percent, primarily as a result of a cut-back in aircraft production. The reasons for this decline is not yet clear. Contributing factors may have been: New priorities in favor of economic growth established by a less military-oriented leadership in the wake of Lin Piao's death in late 1971; an inability to develop follow-on advanced weapon systems.

#### TRADE-OFF BETWEEN MILITARY AND ECONOMIC DEVELOPMENT

Chairman PROXMIRE. That is a very, very interesting analogy, and fascinating, but it seems to be a trade-off. If they are going to concentrate on military development, they will have to reduce their economic development, or at least reduce the rate of increase of their economic development, and it would seem the same thing would apply to the Soviet Union.

Mr. COLBY. Well, here your talent base as such is smaller; that is, capable of running this kind of advanced technology. So it is a higher percentage of commitment to the military. It is a higher percent of total effort. It has nothing to do with the numbers of people, but it is a higher percentage of talent devoted to this nonproductive effort.

Chairman PROXMIRE. Here you can see that if the Soviet Union is looking for a long term revolution on the notion of their often professed belief that they still hold of world revolution by force and violence, if they are going to achieve that, it will have to be, it seems to me, in the distant future. It would seem to be therefore more dangerous if they reduce their military and concentrate more on their economic development. That is where the future really has to be because without a very, very powerful economic plant, they will be unable to develop the enormous spectrum of weapons that they would have to have to take on anything like this country.

Mr. COLBY. Then you have the basic dilemma of how can you run a very productive economic apparatus and even a research and development apparatus under the conditions of political control that they think is essential to their lifestyle, and that is a terrible dilemma for them that they have not worked out.

<sup>1</sup> See chart entitled "China: Trends in Military Procurement," p. 77.

Chairman PROXMIRE. That is a constraining factor, but I think we are always inclined to be more and more tense and disturbed about the terrific Soviet danger when they increase their military, for obvious reasons. But it seems to me it can be counterproductive for them, inasmuch as, to the extent that they push resources to this area, the resources available for the others are less.

Mr. COLBY. Well, their value system says that they have to be a strong military power. They have to be, in their cosmos, they have to be equal to the United States, so there is a drive to be equal to us.

Chairman PROXMIRE. Here you have got the Chinese cutting back on their military. Rather than being reassured, I think this indicates that eventually they are building toward what could be a very threatening political society. If they concentrated more on the military area, I think they would be less threatening.

Mr. COLBY. Well, they have got so many enormous problems in running China, I mean, their population base is so enormous, it takes up so much of their time and energy just staying afloat.

#### PROCUREMENT TRENDS

Chairman PROXMIRE. Who is running China? What is the lineup?

Mr. COLBY. [Deleted.] As you can see on the chart, procurement in 1973 increased slightly over the 1972 level, but still remains considerably below the peak of 1971. As this chart shows, it also is considerably below the U.S. and the U.S.S.R.<sup>1</sup>

#### DEFENSE OUTLAYS

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 dollar index of military procurement, priced in dollars, with the index of growth in industrial production.

From 1964 to 1971, military procurement rose considerably faster than overall industrial output. Since 1971, the trend has reversed. This decline in the defense share may be illusory, however, because some procurement funds may have been diverted into military research and development.

It should be borne in mind that military production preempts China's most modern production capacity and, more important, has first call on the Nation's finest scientific, engineering, and managerial talent. [Deleted.]

China's history of sudden bursts in defense production, and equally unexpected reductions, provides little basis for projecting future military procurement levels. Given the Chinese leaders' clear intention to develop modern, sophisticated weaponry, however, we expect the trend in procurement to be upward over the next few years.

Mr. Chairman, that completes my statement.

[The prepared statement of Mr. Colby follows:]

<sup>1</sup> See chart entitled "China: Growth of Military Procurement and Industrial Production," p. 78.

## PREPARED STATEMENT OF HON. WILLIAM E. COLBY

## INTRODUCTION

I. Mr. Chairman, it is a pleasure to be here this morning. As you requested in your letter inviting me to appear, I will discuss the economies of the Soviet Union and the Peoples Republic of China. I will make comparisons with the U.S. economy where these are meaningful, or help to put the economic performance of the other two powers into perspective.

A. In separate sections, I will deal with the commitment of resources to military and space functions, and describe how we arrive at our estimates of Soviet and Chinese expenditures in these areas.

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

II. Before moving into substantive matters, I would like to say a few words about economic intelligence, and its relationship to open and unclassified economic reporting and analysis.

A. CIA started economic intelligence on the U.S.S.R. and China. It built a corps of economic analysts for this purpose:

(1) As the importance of foreign economic developments for the U.S. economy and U.S. Government policy has grown, demands increased on CIA and this well-equipped analyst corps for intelligence support on other parts of the world.

(2) The National Security Council, the Council for International Economic Policy, the Departments of State and Treasury, and other departments and executive staffs frequently request information, analyses, and estimates on foreign economic developments from CIA.

B. Intelligence support to these policymakers requires an integrated view of political, military, and economic events. Even when the events in question are mainly economic, they often impact on U.S. *security* as well as economic interests, and must be looked at in the overall context:

(1) In the past 6 months, for example, information concerning economic threats to our access to key natural resources, such as petroleum, have taken on increasing importance.

C. To produce such reports, CIA has the *unique* capability to incorporate into its analyses economic information which can only be obtained through highly sensitive collection programs:

(1) This is especially true of information on the *intentions* and *negotiating strategies* of foreign officials. Senior U.S. policymakers and negotiators have found such information invaluable on critical international trade, finance, and energy issues that impact directly on U.S. national security, political and economic objectives.

(2) Classified collection programs are also essential to economic intelligence on *denied areas*. In the analysis of economic activities, highly classified sources help to substantiate the analysis and conclusions.

(3) [Deleted.]

D. CIA's economic intelligence production is normally classified because it includes such information from classified sources. However, the ultimate analyses or general conclusions sometimes do not need to be classified:

(1) Such unclassified products are from time to time made available to scholars and Government components outside the intelligence community. As you are aware, CIA economic intelligence analysts have contributed studies to the almost annual issuance on the Soviet or Chinese economies put out by this committee, the most recent of which is titled *Soviet Economic Prospects for the Seventies*, dated June 27, 1973.

(2) The transcript of this hearing will be carefully reviewed to declassify any part which would not reveal sensitive intelligence sources and methods.

*Sources of information on the Soviet economy*

III. [Deleted.] Each year the U.S.S.R. publishes a wealth of information in an official economic handbook (*Narodnoye Khozyaystvo*) that is similar to—although much less inclusive than—the *U.S. Statistical Abstract*.

A. Additional data appear in specialized statistical handbooks on trade, industry, consumer welfare, labor, and agriculture.

B. Population censuses are also published at irregular intervals.

C. Finally, much useful information is gleaned from books, journals, newspapers, radio broadcasts, speeches, and the like.

IV. We feel that the data on physical quantities are generally reliable. Unfortunately, official indexes of industrial production, consumption, prices, and economic growth incorporate considerable bias. Moreover, while much economic data is released, vast areas of relative silence remain.

A. Defense-related producing sectors are conspicuous in this regard, following longstanding Russian tradition.

B. Money and banking data are also sparsely reported.

C. A third bothersome area concerns the Soviet balance of international payments. Ample data on commodity trade have come available in the last decade, but Soviet international financial relations are still unreported.

V. In constructing estimates of the Soviet economy our analysts carefully examine the Soviet data, testing, verifying, adjusting in some cases to make them comparable with Western concepts, and making independent estimates where necessary.

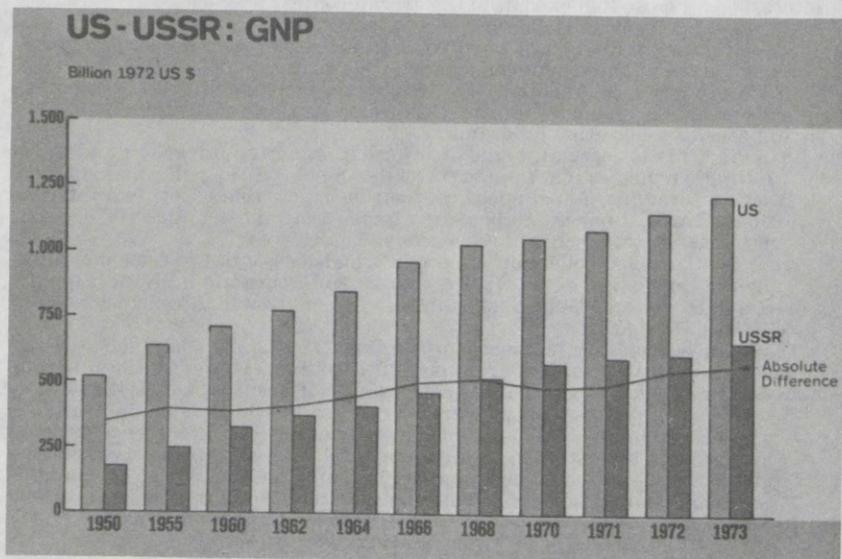
A. [Deleted.]

B. Although our perception of some aspects of the Soviet economy remains less certain than we would like, in general we think we have a good understanding of their economic strengths and weaknesses and their position *vis-a-vis* the United States.

#### THE SOVIET ECONOMY

##### Overview

I. The Soviet Union has become the world's second largest economic power. It has achieved this status by a longstanding stress on *industrial* development. The country now has a gross national product equivalent to \$660 billion—slightly more than half that of the United States.

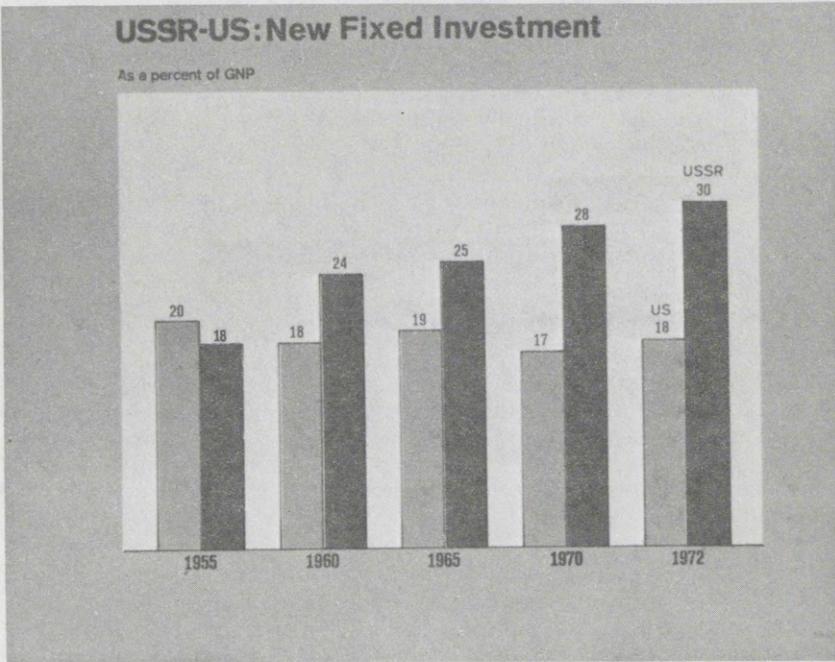


A. Soviet economic growth was especially rapid in the 1950's, as the Nation recovered from wartime devastation. The pace gradually slowed after 1958, and since 1970 the rate of growth has been lower than in the United States:

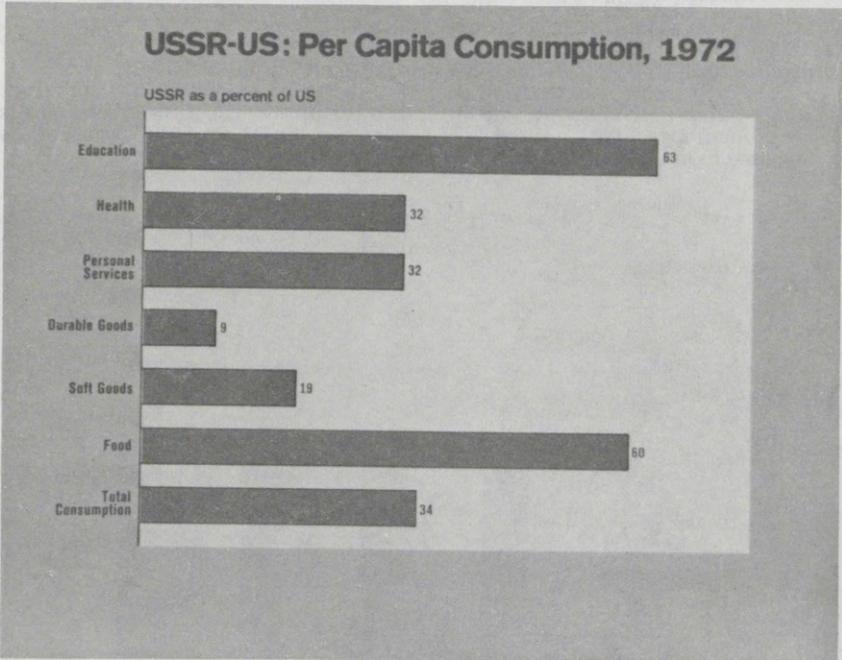
(1) In absolute terms, the gap between the United States and Soviet economies has increased in recent years.

II. The major support for Soviet economic growth has been the leadership's willingness to devote increasing shares of national output to investment.

A. For instance, the share of GNP devoted to investment in new buildings and equipment has grown steadily since the 1950s. The USSR now spends over one-fourth of its national product on new buildings and equipment, as opposed to less than one-fifth in the United States.

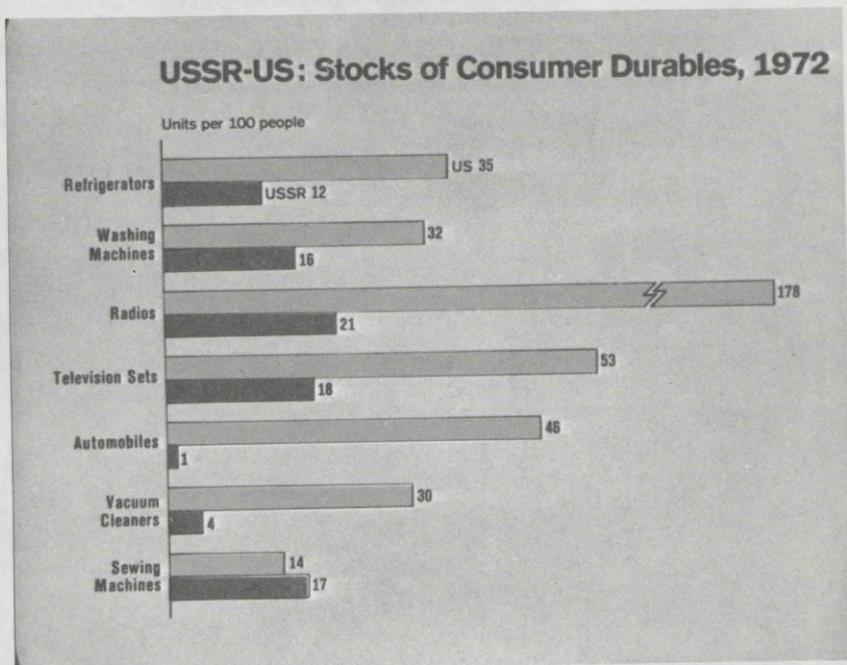


B. This policy of achieving economic growth by favoring investment has forced the Soviet population to accept a smaller share of the national product than its U.S. counterpart.



C. In 1973 the average Soviet citizen consumed about one-third as much goods and services as a U.S. consumer, but even this comparison does not tell the whole story. The Soviet consumer is also plagued by an inferior quality, assortment, and styling of clothes and durables, chronic shortages, and long queues at retail stores:

(1) Even compared with Eastern Europe, the level of living in the U.S.S.R. is markedly low.

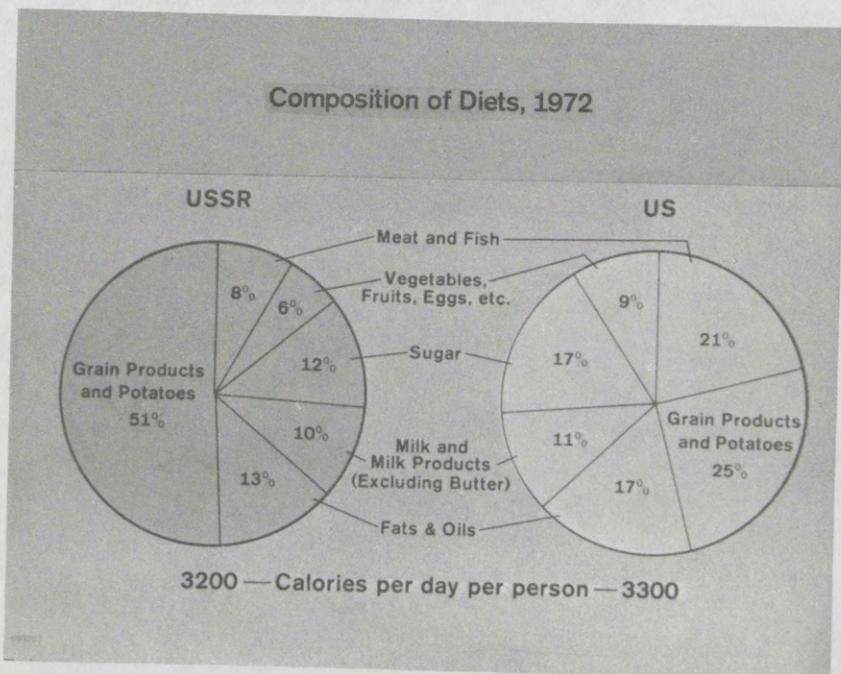


D. Except for sewing machines, Soviet consumers enjoy only a fraction of the durables readily available in the United States. Many items—automatic washers, dryers, and freezers—simply are not manufactured or sold in the U.S.S.R.

E. The situation is gradually improving—particularly for those on the bottom rung of the economic ladder:

(1) In the last 2 years, the new Togliatti plant has increased passenger car output substantially. The waiting period for a new car is now around 2 or 3 years—which is better than the previous 6 year wait.

(2) Soviet households also can buy furniture and better quality refrigerators with less delay.

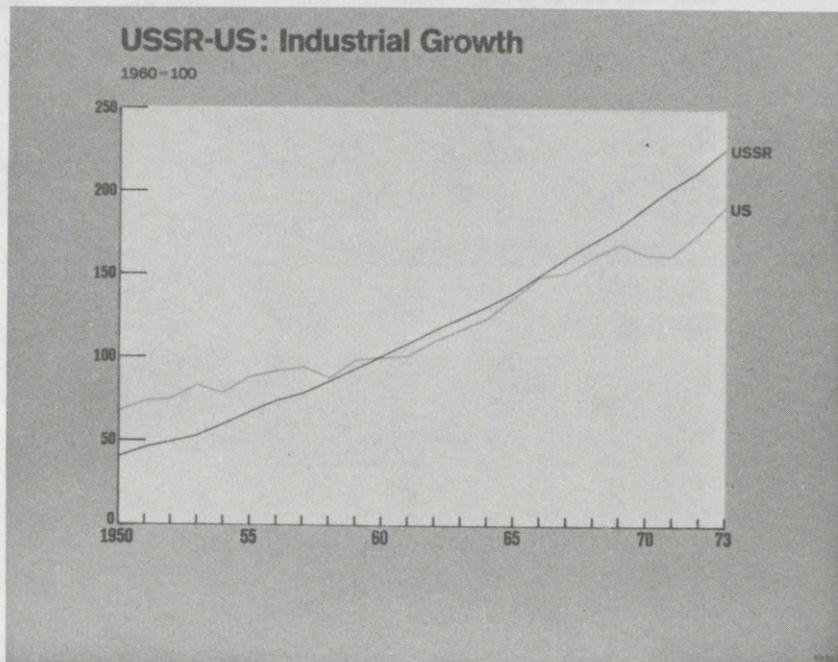


F. The Russian people get enough to eat in terms of daily calories, but their diet is heavily weighted with starches and low in meat, vegetables, and fruit.

(1) Under Brezhnev, the U.S.S.R. has made meat consumption the basic plank in its consumer program, and per capita consumption has increased by one-fourth since 1965. Nevertheless, the average Soviet citizen still eats only about 40 percent as much meat as his U.S. counterpart.

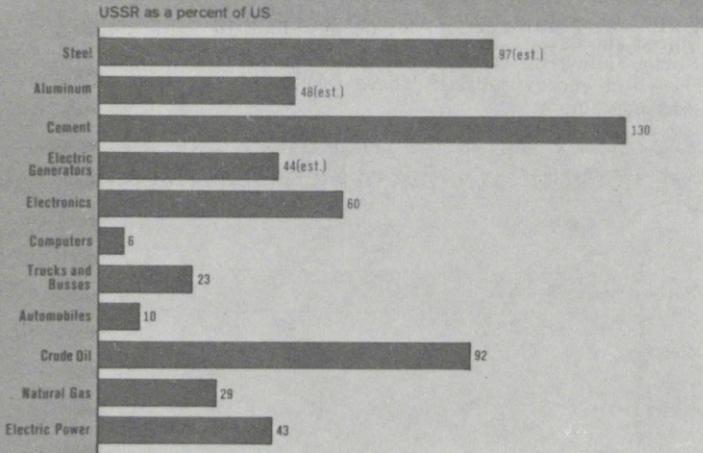
### *Industry*

III. With this brief introduction, let us now look in more detail at various sectors of the Soviet economy. I will begin with industry, which has been the showpiece.



A. During most of the postwar period, industrial production grew faster in the U.S.S.R. than in the United States. But the emphasis was on heavy industry, and producer goods have been favored over consumer goods.

### USSR-US: Output of Producers' Goods, 1973



B. Although the *growth* of Soviet industrial production has been impressive, the *quality* and *variety* have been deficient. The leadership has been striving to overcome these shortcomings:

(1) Soviet industrial managers, however, are hampered by the relatively low technological levels of their plants and equipment. Also, the planners criticize their inefficient use of industrial materials.

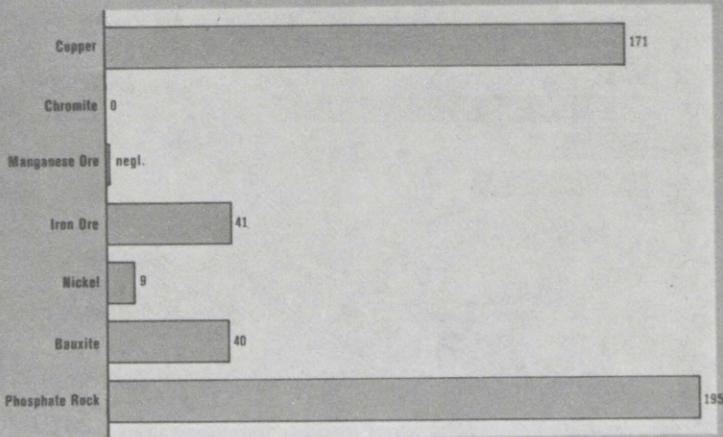
(2) The managers in turn blame the shoddy equipment turned out by domestic machinery enterprises and failures in industrial supply.

(3) Efforts to upgrade domestic machinery and economize on the use of industrial raw materials during the past 2 years have had only limited success.

C. Soviet industrial strength has been based above all on abundant raw materials and energy sources. These resources are still available, but are more expensive now:

### USSR-US: Output of Metals and Minerals, 1973

US as a percent of USSR

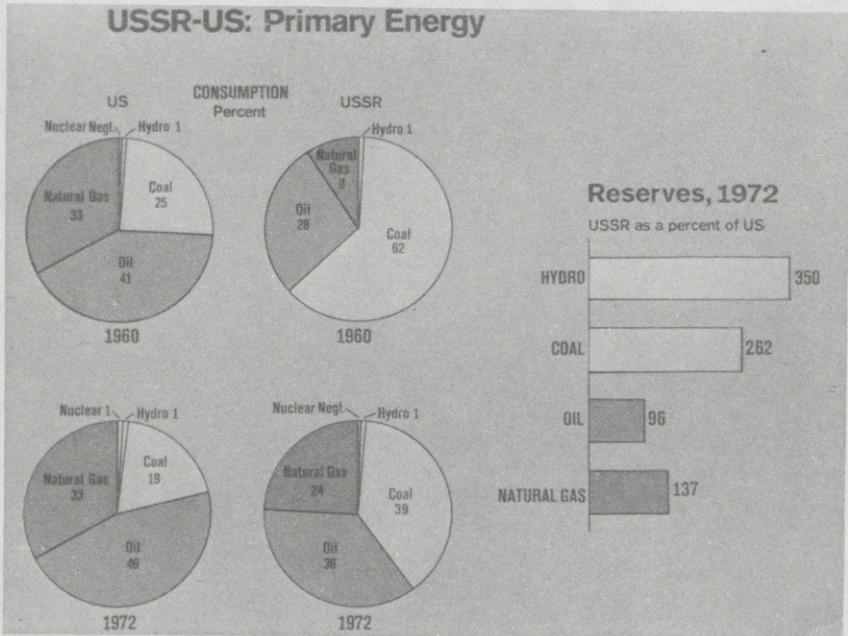


(1) Production of metals and minerals is sufficient in most cases to provide for both domestic requirements and Eastern European needs. The major exception is tin, which has to be imported in large quantities.

(2) Nevertheless, the Soviet Union has already exploited many of its most accessible mineral deposits. Most of the remaining reserves are in Siberia or the Far East, where the severe climate and lack of transportation and local labor hinder development.

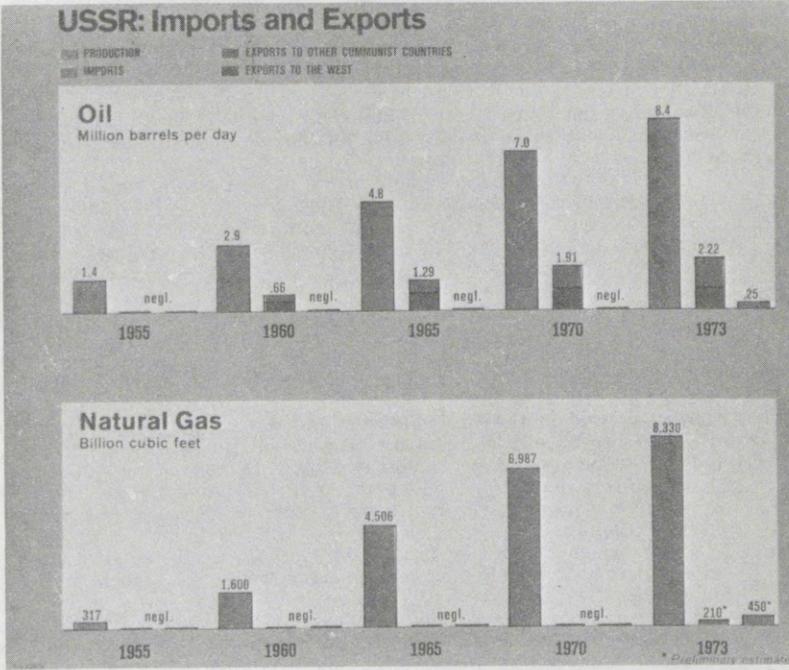
### Energy

IV. Energy, now such an important word in the United States, is also very much on the minds of the Russian leaders. Just as in our country, Soviet economic growth has depended on the exploitation of huge energy resources. There are, however, substantial differences in the pattern of energy consumption in the two countries.



A. Nevertheless, the shift toward oil and gas in the Soviet energy balance has been rapid. Also, growing quantities of petroleum have been sent to Eastern Europe and the West.

B. It may be comforting to know that in recent months Soviet petroleum officials have complained about the headaches the world energy crisis has given them :



(1) They claim, for instance, that the U.S.S.R. does not have enough oil to simultaneously meet its own requirements, fill the needs of other socialist countries, and continue to expand deliveries to established markets in capitalist countries.

(2) Although crude oil output was below plan in 1972 and 1973, shortages similar to those in the United States did not and will not occur. The U.S.S.R. is a net exporter of about 2 million barrels per day of oil, almost one-fourth of total domestic production. About one-half of these exports go to the West, especially Western Europe.

(3) Moscow has little, if any, uncommitted oil from domestic sources with which to *expand* sales to the West and take advantage of the present prices.

C. The expanding demand for oil and gas comes at a time when production from existing Western fields is leveling off. The development of Siberian and offshore deposits must fill the gap:

(1) Exploration of these new sources will require a huge investment.

(2) Moreover, without foreign—especially U.S.—help, development will be delayed. The U.S.S.R. lacks some of the critical technologies needed to drill at great depths and offshore, or to pipe gas across the Siberian permafrost.

### *Agriculture*

V. Annoying as these energy problems may be, the *real* economic headache in the Soviet Union is agriculture. Despite massive investments under both Khrushchev and Brezhnev, assuring an adequate food supply for a growing population has been a constant problem.

A. Of all sectors in the United States and Soviet economies, agriculture offers the greatest contrast in terms of organization and efficiency:

(1) For example, the Russians employ 31 percent of their labor force in agriculture, as opposed to 4 percent in the United States. The Soviet output per worker however, is only 11 percent as much as is achieved in the United States.

(2) A measure of Soviet production methods can be gleaned from the fact that they have only 5 percent as many trucks per 1,000 farmworkers as we do.

(3) Finally, the U.S.S.R. has been expanding sown acreage in an effort to increase production, while the United States—until recently—had been reducing the area under cultivation and struggling with farm surpluses.

B. Soviet agriculture is handicapped by a short growing season and an extreme continental climate. As a result, production is highly variable. The crop failure of 1972 was followed by a record harvest in 1973—only the most recent example of the large swings in the crop yields.

C. Soviet farm production has climbed far above the level of a decade ago, but still cannot provide the quality diet that the Soviet population desires. The demand for meat is rising faster than incomes, placing a severe strain on the Soviet grain-livestock economy.

D. Changes in the size of the Soviet grain crop have world-wide repercussions, especially since Brezhnev's program to provide the Soviet people with a better diet has pulled up the demand for feed grain:

(1) Through 1971, grain production did not keep pace with demand, and deep inroads were made into government stocks.

(2) Then, confronted with the poor 1972 harvest, the regime imported massive quantities of grain—over 24 million tons in fiscal year 1973—rather than abandon its livestock goals. Of this total, 18 million tons were wheat to replace the Russian wheat that had been fed to livestock.

(3) The United States supplied most of these grain imports—10.5 million tons of wheat, 3.7 million tons of corn and a little rye and barley.

E. In 1973 the gross Soviet grain harvest was a record—about 222 million tons. After discounting for unusually high moisture content, we estimate the net usable grain at about 170 million tons. This harvest should reduce grain imports in fiscal year 1974 to perhaps 12 million tons, about half wheat and half other grains:

(1) The record crop and continuing imports will permit a rebuilding of stocks and continued exports to client states. Also, the Soviet Union will be able to offer grain for political purposes, such as the loan of 2 million tons of wheat to India last year.

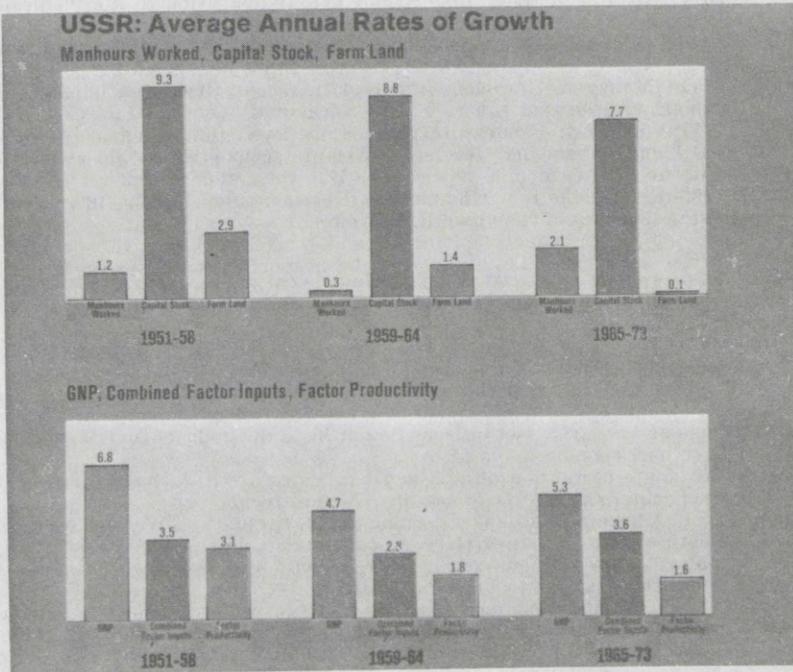
#### *The leadership's attitude*

VI. Sensitivity to the economic situation is characteristic of the Soviet leaders. The leadership, for example, is well aware of the variations in grain output and the ever present possibility of having to increase grain imports. On the whole, they view the past economic record with a sense of accomplishment, but are not entirely pleased.

A. The fact that troubles Soviet leaders, despite great progress, is that the U.S.S.R. remains far behind the U.S. in a number of key areas. The emergence of Japan as a major economic force has added to this concern.

B. The slide in the GNP growth rate naturally worries the leadership, because catching up with the West depends on vigorous economic growth. Declining rates of growth in productivity are causing the most concern:

(1) Past growth was based on large increases of productive farm land, new plants and equipment, and workers. Except for labor, the rate of growth of these factors has declined sharply.



(2) This chart will help explain this problem. You can see the rates of growth of manhours worked, fixed capital, and farmland in the Soviet economy. The chart also presents our rough estimate of the extent to which changes in both the quantity and the productivity of man-hours, land, and capital were responsible for past growth in GNP.

(3) From 1950 to 1958, the very rapid growth of capital stock and the farmland added by Khrushchev's virgin land campaign helped push the rate of growth of GNP to almost 7 percent each year. (The rate of growth of man-hours was held down by the delayed effects of low wartime birth rates.) But—at the same time—the productivity of land, labor, and capital increased almost as fast as combined factor inputs did.

(4) Before Khrushchev's fall from power, Soviet growth slowed because the rate of growth of inputs declined, and the growth of productivity of land, labor, and capital combined slowed. The Brezhnev coalition was able to improve somewhat on this situation in 1965-73, but only by stepping up the manhours worked. The rate of growth in productivity of land, labor, and capital continued to fall.

(5) Soviet leaders have repeatedly indicated that their economy will have to depend primarily on productivity gains, rather than on massive additions of men and equipment.

C. Another way of looking at the question of productivity is to compare labor productivity in the U.S.S.R. and the United States. In spite of a volume of investment per worker nearly equal to U.S. levels in recent years, labor productivity in Soviet industry is only about half the U.S. level. Soviet industry was able to grow faster than U.S. industry mostly by increasing employment:

(1) Similarly, farm labor is only about 10 percent as productive in the U.S.S.R. as in the United States, and this gap is not shrinking.

(2) Managerial problems inherent in a centralized and bureaucratic system are the root causes of this consistently poor productivity.

D. Until recently, Communist planners believed that intensive domestic R. & D., plus "borrowing" the latest Western technology, would enable the U.S.S.R. to gain economic superiority. But they underestimated the pace of Western technology, particularly in Germany and Japan, and overestimated the efficiency of their own R. & D. effort.

#### *The need for technology*

VII. Thus we come to the so-called "technological gap," which is becoming a vexing *political* dilemma for the Soviet leaders, as well as a crucial *economic* problem.

A. This gap is an across the board one—from ICBM systems to electric razors—and increasing contacts with the developed West have made it harder to conceal this situation from the Russian people:

(1) Public lecturers in Moscow are frequently badgered with questions as to why Soviet citizens do not have the gadgets that Westerners have long been accustomed to.

B. An acute perception of this gap has spurred the Soviet leaders to increasingly intensive efforts to acquire Western technology:

(1) Marxian concepts concerning the inevitability of Western economic collapse and the superiority of communism have quietly given way. Instead, Moscow now considers trade with the developed West as essential to close the technological gap.

(2) The major channel that the U.S.S.R. uses to acquire technology from abroad is the outright purchase of machinery and equipment. Soviet orders for Western machinery and equipment hit \$2.7 billion last year—a 60-percent increase over 1972. The United States got \$500 million worth of these orders.

(3) Other channels have included the acquisition of technical data, contacts with Western firms and scientists, and formal arrangements for joint research and exchange of scientific and technical information.

C. In some military applications, the results of this reverse engineering have been good; in civilian sectors, the outcome has been less happy. Western equipment frequently is not as productive in a Communist setting as it is on native ground. Attempts to exploit foreign technical data or copy foreign machinery have had mixed success.

D. The onset of détente has dismantled some of the traditional obstacles to Soviet acquisition of U.S. technology. Medium term and long term credits extended after May 1972 resulted in a large increase in Soviet imports of U.S. equipment and technology. In addition, U.S. export controls have been relaxed, but still restrict Soviet access to very specialized and sophisticated foreign technology.

#### *The Soviets face their problems*

VIII. The leadership team that assumed power in 1964 has attacked economic problems on a number of fronts.

A. The present regime—unlike its predecessors—has given agriculture a consistently high priority:

(1) Since 1965, the share of total investment going to agriculture has averaged almost 20 percent. American agriculture gets less than 5 percent of U.S. investment.

(2) Average incomes of farmers have risen by over one-half during the Brezhnev era, as opposed to one-third for other workers.

B. Brezhnev has just announced an enormous program to increase and upgrade the farm lands of European Russia:

#### **Non-Black-Soil Zone of the USSR**



(1) Last month, he declared that 35 billion rubles would be spent during 1976-80 in the first phase of a 15-year project to develop the nonblack soil region of the Russian Republic. This is almost one-fourth of the total agricultural investment planned for 1971-75.

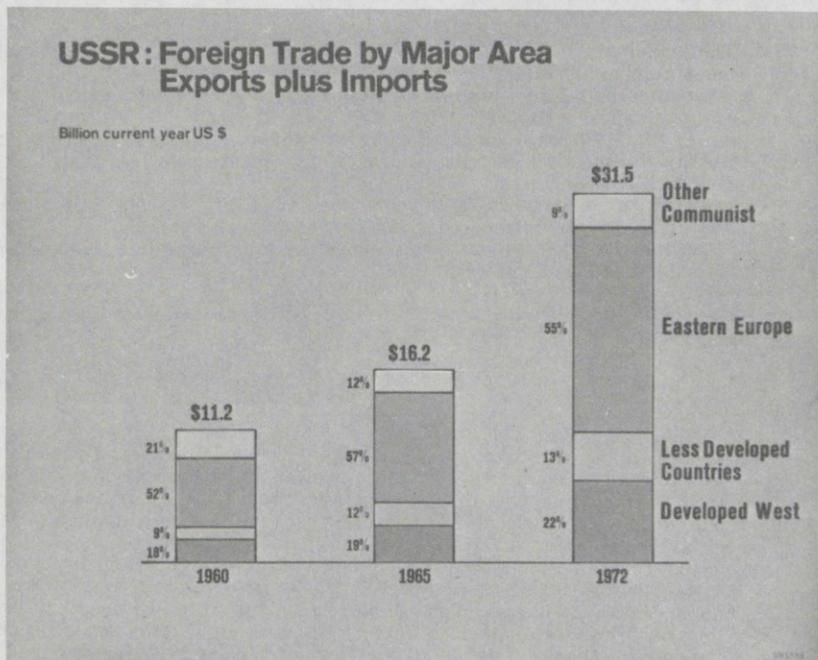
(2) His aim is to reclaim or improve 124 million acres—79 million of crop land, and 45 million of grazing land. The crop land would be equivalent to about 15 percent of current sown acreage.

(3) The nonblack soil area has large tracts of boggy, uneven land, but it has high annual precipitation and responds well to the application of lime and mineral fertilizer. The Soviets hope that this region will provide steady growth in grain production.

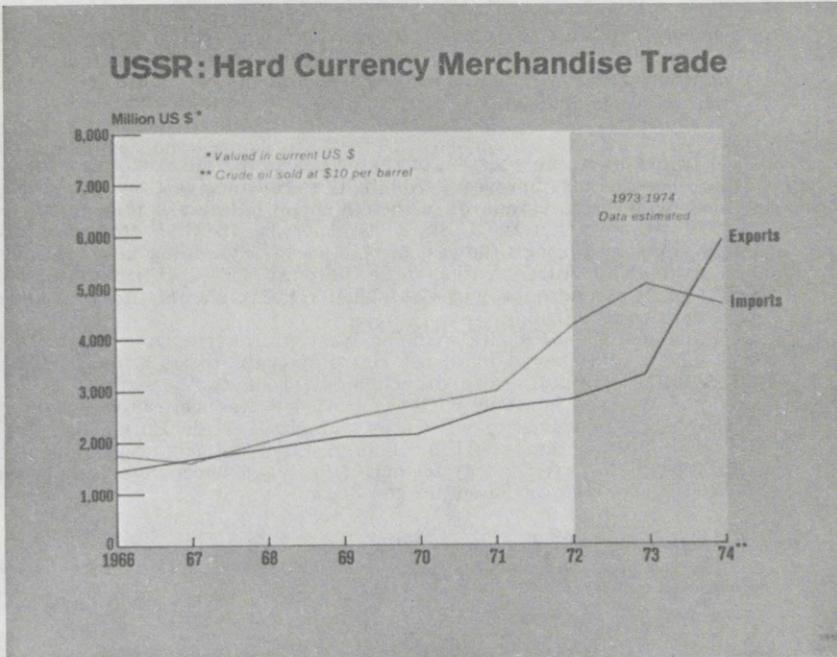
(4) The Soviets do not have a good track record in land reclamation, however, and the Brezhnev program is unlikely to work out as announced. In any case, major benefits will not appear before 1980.

C. Organizationally, the 1965 economic reform attempted to improve efficiency by making managers cost and profit conscious. Success was very limited, however, because managers were still told to meet output goals regardless. Continued tinkering with the system has not fundamentally altered managerial attitudes.

D. Another step to improve the economic picture was increased trade with the West, which has become especially important since the late 1960's:



(1) Recently, the emphasis has shifted to trade with the United States in particular. Only the United States had the grains the Soviet Union needed in 1971-72, and relaxed U.S. controls stimulated sales of machinery to the U.S.S.R.



(2) Almost all Soviet trade with the developed West—and with some less developed countries—is paid for with hard currency, as distinct from barter trade. An upsurge in imports from these areas has not been matched by increased Soviet exports, resulting in a hard currency deficit averaging about \$250 million annually during 1960–71.

(3) Until the mid-1960's these deficits were financed primarily by gold sales. By the end of 1965, however, Soviet gold reserves were down to about 1,000 tons, and Western government-guaranteed medium- and long-term credits applied to Soviet purchases of capital goods became the chief method of financing Soviet deficits. During 1966–71, such credits amounted to more than \$2 billion. In 1971, debt service—payments of principal and interest—were equal to 17 percent of Soviet hard currency exports.

D. The U.S.S.R.'s merchandise trade deficit with the hard currency area reached a record \$1.7 billion in 1973—largely because much of the grain purchased in 1972 was delivered in 1973. The U.S.S.R. imported at least \$1.5 billion in agricultural products (chiefly grain) and about \$1.5 billion in machinery and equipment. Soviet export earnings were higher than in 1972, however—in part because of higher prices for oil:

(1) To cover the 1972 deficit, the U.S.S.R. relied on new Government-backed net medium- and long-term credits—as well as substantial gold sales for the first time since 1965. (Gold reserves had been built up again as a result of growing production and the low volume of sales.)

(2) In 1973, the burden of recent trade deficits was lightened considerably by easy access to Western credits and by the windfall increase in the price of gold. In addition, dollar devaluations permitted the substantial Soviet borrowing on the Eurodollar market in 1972 to be repaid with cheaper dollars.

### Prospects

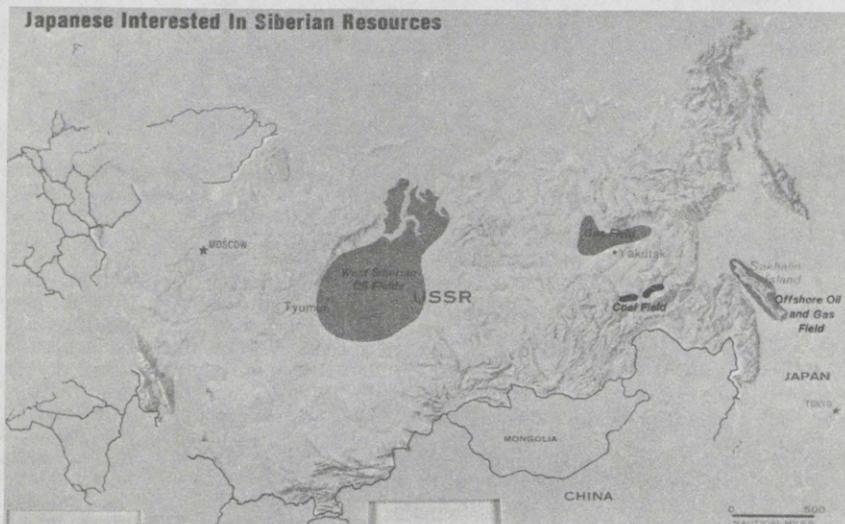
IX. This brings us to the question of the prospects for the Soviet economy. We believe that over the next few years it is likely to continue to grow at a rate considered good by Western standards, although somewhat slower than in the past.

A. We estimate that the U.S.S.R. can increase its GNP from  $4\frac{1}{2}$  to  $5\frac{1}{2}$  percent per year through the rest of this decade by adding new contingents of labor at about current rates, while the pace of capital investment slows slightly. This estimate, of course, assumes relatively stable internal and external political conditions.

B. Expanded economic ties with the West will have an important place in Soviet plans, and they will almost certainly want to trade more with the United States, especially for high technology products:

(1) If trade relations with the United States were broken, however, they could find most of what they want in Western Europe and Japan.

C. In this connection, the U.S.S.R. and Japan initialed a document last month that could pave the way for one of the biggest economic deals between the two countries since the end of the Second World War.



(1) If final agreement is reached, the Japanese will provide a credit of \$450 million to help finance a coal mining project in Yakutsk in eastern Siberia. The Japanese will be repaid by deliveries of coking coal beginning in 1983.

D. The U.S.S.R. has been particularly active in increasing its economic relations with West Germany. Recent discussions have centered on the possible West German construction of nuclear power plants in the U.S.S.R.:

(1) A contract has been signed for joint development of a \$1 billion iron ore and steel plant in Kursk—in central European Russia.

E. France has also continued to support Soviet development. Within the last year French firms have signed two contracts—\$150 million for the development of a Siberian cellulose plant, and \$100 million for the design and equipping of five petrochemical plants. There has also been some discussion of French participation in the construction of a \$1 billion aluminum complex.

F. From the Soviet side, the possibilities for increased trade have improved, and Soviet hard currency earnings should rise rapidly over the next few years:

(1) With expenditures for Western grain in 1974 expected to be half or less of 1973 outlays, these earnings could easily support a large rise in Soviet imports of Western plants, equipment and other goods. Imports of machinery and equipment, which rose sharply in 1972 and 1973, should increase even faster in 1974-1975.

(2) The value of Soviet exports should rise sharply during 1974-75 because of the much higher prices for oil and raw materials. With market prices expected to range between \$7 and \$10 per barrel, oil exports alone may earn \$2-\$3 billion in 1974 and \$2.6-\$3.7 billion in 1975. Higher prices for wood products, chemicals, and coal—along with expanded deliveries of natural gas—could push total Soviet exports to almost \$6 billion in 1974 (double the 1972 level) and to \$7 billion in 1975.

(3) Gold sales, however, represent the largest single additional source of potential foreign exchange earnings. Soviet gold reserves are now estimated to be more than adequate in view of the long-term debt of \$3.6 billion at the end of 1973. The Soviets would therefore be free to market most, if not all, of current gold production in Western markets. [Deleted.]

G. Between 1976 and 1980 the outlook for the Soviet balance of payments is less favorable than in 1974-75.

(1) Exports of crude oil to the West are expected to peak in 1976 and then decline as a result of constraints on domestic supply, higher domestic consumption, and commitments to Eastern Europe—as well as limits on the volume of barter imports from the Middle East.

(2) Earnings from other sources such as gold sales, tourism, and transportation should help to soften the impact of the declining oil revenues. If the U.S.S.R., for example, continues to sell just its yearly production of gold on Western markets, at \$150 an ounce, annual revenues could reach \$1.5 billion by 1980.

(3) The projected falloff in Soviet hard currency exports has broad implications for the U.S.S.R.'s foreign trade position.

If imports on long-term credits continue to increase at the present rate, and if the U.S.S.R. concludes the massive cooperative projects now being discussed with the West—for example the Tyumen, Yakutsk, and North Star oil and gas projects—total long-term debt could reach \$9 or \$10 billion by 1980.

Service on such a debt would require approximately \$2.3 billion, or 35 percent of projected Soviet exports in 1980.

(4) The Soviets, however, probably will not continue to increase drawings on Western credits at present rates. In view of their improved export potential, they may pay cash for some of their purchases. They did just that last month when they paid for West German equipment for the first stage of the Kursk iron and steel complex.

H. Over the long term, the Soviet leadership's most difficult problem in the economic sphere will be how to manage an increasingly complex economy:

(1) The economic mechanisms devised by Stalin were effective in pulling the country up by the bootstraps, and establishing the basic foundations of an industrialized economy.

(2) The present system, however, pays too little attention to price, cost, and demand factors, and does not seem well suited to meeting the needs of a modern society.

(3) The challenge facing the current leadership is to adjust the system to meet these needs without surrendering the power they hold so dear. No one—either inside or outside of the U.S.S.R.—has yet advanced a convincing program for economic reform that would achieve this kind of balance.

#### *Military expenditures*

X. Mr. Chairman, you probably noticed that in this review of the Soviet economy I made no mention of the impact of expenditures for military programs. The omission was intentional. Since you have indicated a particular interest in this problem, I thought it best to respond at some length, in a separate section. I might begin by assuring you that the Soviet leaders, also, are intensely con-

cerned with this matter, and keep a close eye on defense spending. They apparently believe, however, that their economy is capable of sustaining or even accelerating the pace of defense spending.

A. Soviet defense and space spending has been growing by about 3 percent per year since 1960. The economy has been growing faster, however, and the share devoted to defense declined.

B. Military expenditures impact on the Soviet economy principally by appropriating some of the best materials and highest-quality skilled and professional manpower—but they are not a chief cause of Soviet economic difficulties. The civilian economy would, of course, benefit from having more of these scarce, high-quality resources, but their transfer to civilian purposes probably would not boost overall economic growth much.

XI. A few words about the organization of the Soviet military forces may help make the amounts spent on them more meaningful.

A. There are five main branches of service; the ground forces, the navy, the air defense forces, the air force, and the strategic rocket forces. The Soviets also maintain an active research and development establishment, as well as a space program that has both civilian and military applications.

B. The Soviet ground forces, as well as air defense forces, are much larger than those of the United States. All together, the Soviets have 4 million men under arms—about 1½ million more than the United States.

C. The budget released in December of each year is the only official statement made by the U.S.S.R. on defense spending. The figure announced is not a useful indicator of either the level or trend in defense spending, however, as its coverage is not known and may change from year to year without explanation. Moreover, military research and development is not in the announced budget.

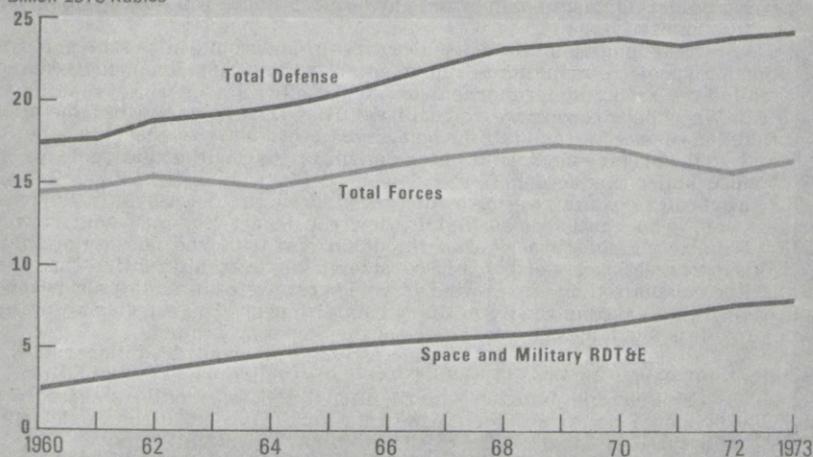
XII. Because the Soviets regard actual levels of military spending as a state secret, CIA estimates of this spending are largely arrived at by a direct costing method.

A. This procedure involves identifying Soviet military programs, estimating the magnitude or the quantities involved in each program, and then applying estimated individual prices to each quantity. All Soviet military activities other than the military research and development figure are estimated by this procedure, and are thus independent of the published defense spending figure.

B. We estimate that Soviet expenditures to support this military effort amounted to at least 25 billion rubles in 1973. Given the possible range of error in the estimates of both defense spending and GNP, the defense share of GNP probably lies between 6 and 10 percent.

## Estimated Soviet Expenditures for Defense

Billion 1970 Rubles



C. The level of the Soviets' military activity has been increasing steadily since 1960. They have added about a million men to their armed forces and deployed a number of new weapons systems for both strategic and general purpose. The trend in ruble expenditures during this period, as you can see from this chart, has been generally upward—increasing at an average annual rate of about 3 percent. You will note, however, that for the last few years ruble spending has remained at essentially the same level. I will explain why this is so in a moment.

D. The shares of total expenditures devoted to investment (procurement of hardware and construction of facilities) and military research and development, as well as space, have changed significantly over the years:

(1) Expenditures for investment have dropped from about 40 percent of total expenditures in 1960 to around 20 percent in 1972. This drop reflects the completion of a number of major strategic programs begun in the 1950's and early 1960's.

(2) On the other hand, military research and development and space expenditures have increased during the same period, from about 15 percent of total expenditures in 1960 to over 30 percent in 1972. These increases clearly were connected with the several new strategic systems now in development and which were tested especially during the past 9 months.

(3) The largest percentage increase was observed in expenditures for space—which rose from about 2 percent in 1960 to over 11 percent in 1972.

E. The leveling off of ruble spending in the last few years that I just referred to reflects the fact that the U.S.S.R. has been between major strategic procurement cycles. Since 1969 military research and development expenditures for strategic systems have increased rapidly, while expenditures for strategic investment have been declining.

F. We expect that production of the new strategic systems now under development will begin this year, and will cause Soviet investment expenditures to reverse this downward trend.

XIII. The U.S.S.R. recently announced that defense spending would decline by about 1 percent in 1974.

A. We regard this announced cut as largely a political gesture related to Soviet proposals at the UN, MBFR, and SALT, rather than an indicator of actual spending. The Soviets apparently want to convey the impression to domestic and foreign audiences that the U.S.S.R. is confident that continued progress will be made in détente with the United States.

B. Actually, we estimate—on the basis of observed and projected changes in military and space programs and forces—that there will be an increase in Soviet defense outlays during 1974.

XIV. Military research and development is the only category of spending that can be approximated through analysis of published Soviet financial data. Most research and development expenditures are funded under the science category of the state budget.

A. Soviet budgetary literature describes this account as a source of funding for "projects of national importance," and specifically includes defense related research and development.

B. We believe that space and military R. & D. take up most of the allocation for science in the state budget. Some other activities, such as the SST and civil nuclear energy and other nonmilitary activities, are probably also funded under this account.

XV. You will note that we have thus far limited our discussion of Soviet defense spending to ruble terms—that is, how the Soviet leaders would view the effort. We also make estimates of the dollar cost of Soviet defense programs. For this purpose the Soviet force is considered to be an alternative U.S. force, so that the calculation measures what it would cost the United States to purchase and operate the existing Soviet military establishment. These dollar valuations, then, provide a rough measure of the size of the Soviet programs.

A. The dollar equivalent—for our estimate of about 25 billion rubles for the total Soviet defense effort in 1973—works out to be over \$80 billion.

(1) From the late 1950's until 1970, U.S. defense outlays exceeded the estimated dollar cost of the Soviet effort. Since 1970 the Soviet effort, measured in dollars, has exceeded that of the United States.

(2) This catching up is a result of steady increases in Soviet spending, while U.S. spending—measured in constant prices—declined.

B. In terms of the structure of the defense efforts measured in dollars, the United States and U.S.S.R. present a similar picture. In 1973 the amount of resources allocated to the procurement of weapons and facilities was about the same. The dollar value of Soviet spending for operating their forces exceeded U.S. expenditures slightly:

(1) Measured in dollar terms, Soviet resources devoted to active military manpower were over \$35 billion—exceeding the U.S. figure by over \$10 billion.

(2) This difference—which may seem surprising considering the low pay of the Soviet conscript—results simply from applying U.S. pay scales to the larger number of men in the Soviet force.

C. The estimated dollar cost of reproducing the Soviet R. & D. effort also was higher than that of the United States in 1973.

D. While the comparison between the dollar values of Soviet and United States spending reflects levels of effort, I should point out that the mere level of spending is not a good measure of military capabilities and that equal levels of effort do not necessarily result in equal effectiveness of troops or equipment.

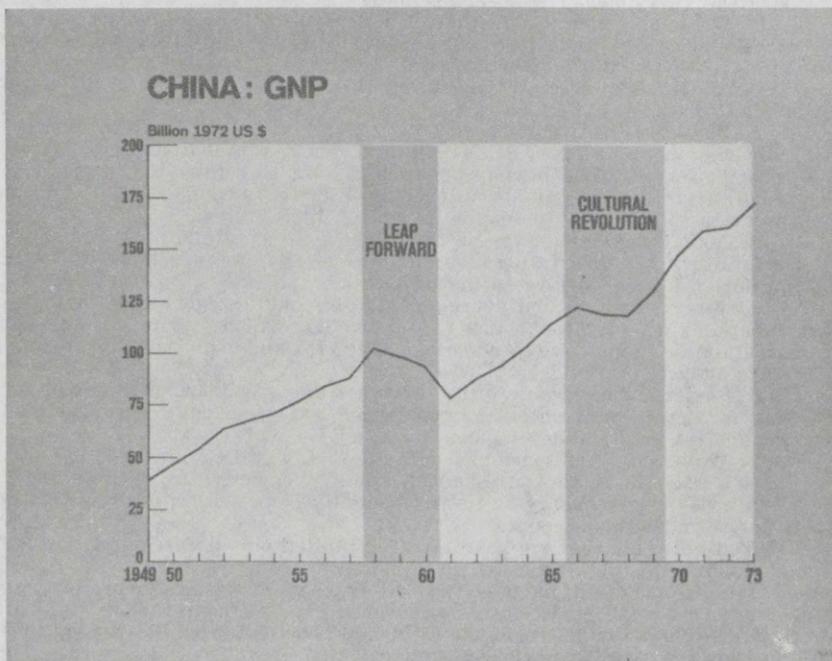
XVI. [Deleted.]

#### THE CHINESE ECONOMY

I. Mr. Chairman, you asked that I also cover the Chinese economy, and single out the expenditures for military purposes. I propose first to discuss the general state of the economy, and conclude with the issue of military expenditures.

##### *Overall performance*

II. Since the Communists came to power in 1949, China's economic growth has been strong but erratic.



A. China's GNP has grown by 4 percent annually reaching a level of roughly \$170 billion in 1973, less than 15 percent of United States GNP. Per capita GNP of \$190 is only 3 percent of the United States figure.

B. National output, which rose sharply in the 1950's, plummeted in the early 1960's following the disastrous Leap Forward (1958-60). In 1966, just as momentum had been regained, Mao unleashed the Cultural Revolution, and production again declined. Since 1968, the economy has been growing steadily, and the latest ideological rumble—the anti-Confucius campaign—so far has had no noticeable effect on output.

C. Though still a poor country, the People's Republic of China can boast of many achievements, including:

Provision of adequate if austere amounts of food and clothing for 900 million people. (We base this on the 1953 Chinese census of 583 million, and an average annual growth rate of 2.2 percent.)

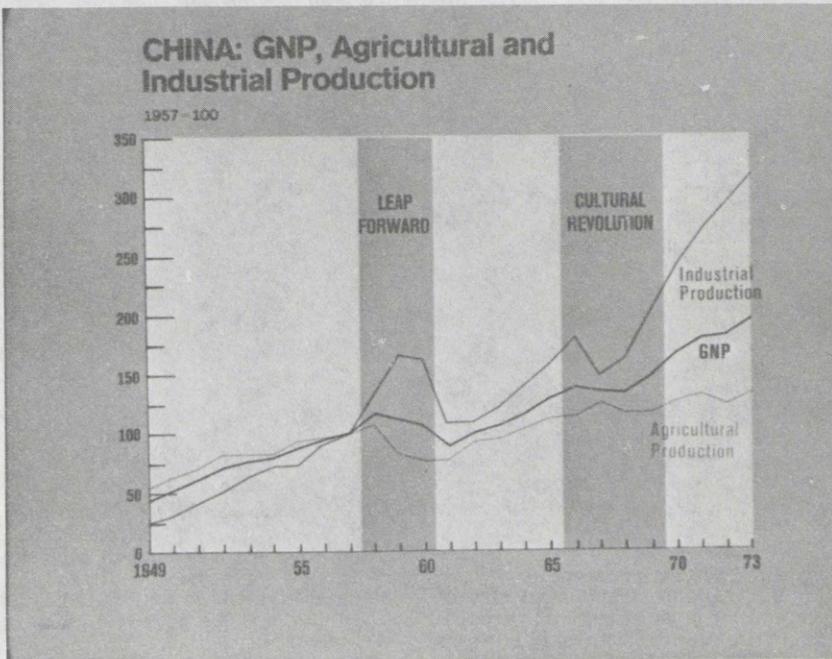
Production of modern military equipment including nuclear weapons, jet aircraft, and strategic missiles.

Production of a wide and growing variety of industrial goods.

Expansion of petroleum output from near total dependence on imports to a growing surplus for export.

Extension of railroad lines through some of the world's most difficult terrain.

D. Nevertheless, China lags 5 to 20 years or more behind the other large industrial nations in various branches of technology. Although China has been outdistancing other less-developed countries such as India, Pakistan, and Indonesia, it is not gaining ground on the fast-moving high-technology nations such as the United States and Japan.



E. Until 1962, China's leaders stressed heavy industry and defense at the expense of agriculture and consumer welfare:

(1) Industrial production has grown by about 8 percent per annum compared to 2 percent for agriculture.

(2) After the "disaster years" of 1959-61—when China was brought to the verge of starvation—the regime shifted to an agriculture first policy—

(a) The modern sector of the economy began to supply agriculture with increasing amounts of chemical fertilizer, pesticides, pumps, seeds, trucks, and farm machinery.

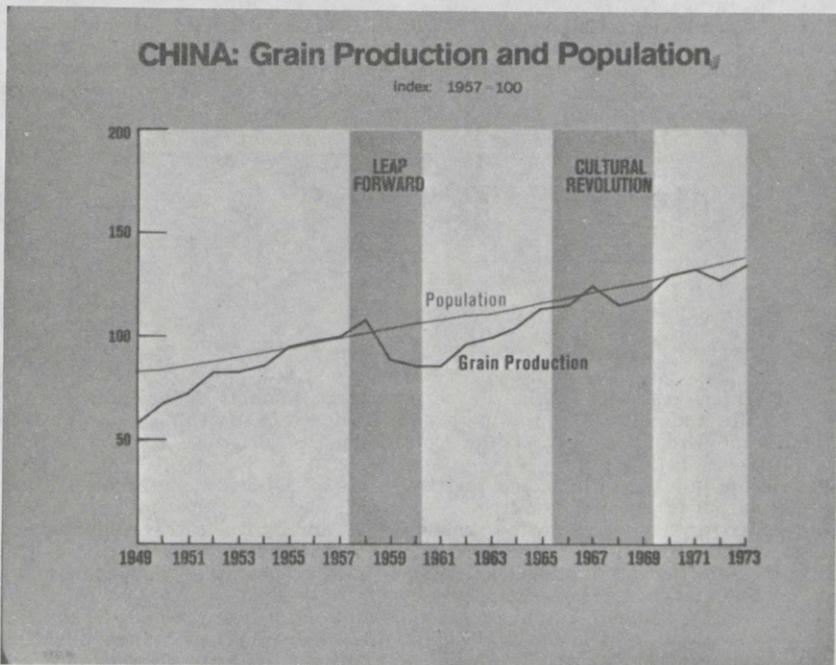
(b) Investment in industry reflected the new policy. Most notably, China in the past 2 years has contracted to buy more than \$1 billion worth of fertilizer and synthetic fiber plants to strengthen agriculture.

(3) Concurrently, there appears to be some slowdown in military expenditures and increased emphasis on consumer goods.

(4) Also, to give a fillip to industrial modernization, China has relaxed its policy of avoiding foreign debt by arranging to finance industrial plants through deferred payments.

#### *Performance by sector*

III. When we look at the Chinese economy sector by sector, it is apparent that agricultural production and its relation to population is still the basic problem. Some steps have been taken to ease the pressure on agricultural production.



A. China's population is about 900 million and is continuing to grow by about 2 percent per annum.

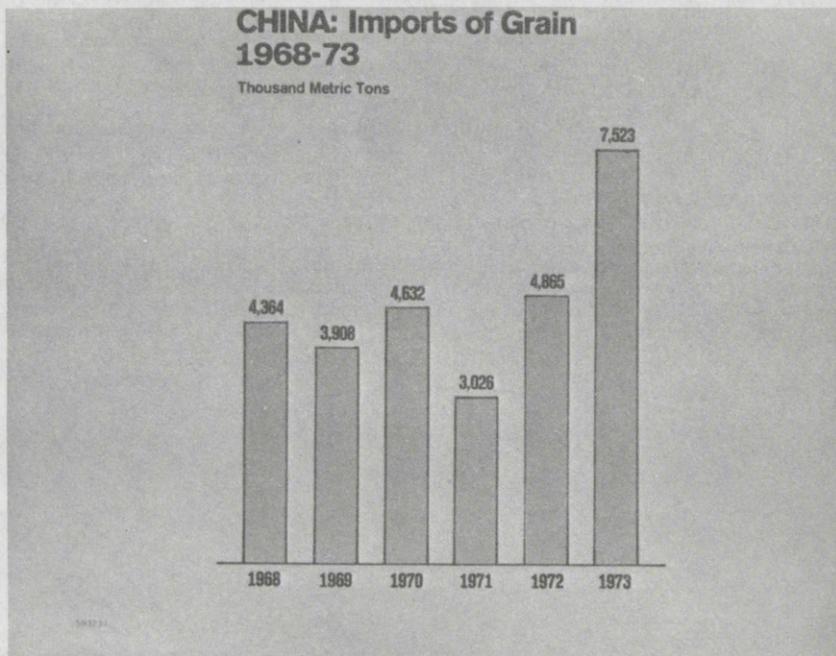
B. Available arable land already is being cultivated, so major additions to output must be derived through increases in yields. Large investments in fertilizers, water control facilities, and research are needed.

C. Though domestic fertilizer production—both from modern and local plants—has been rising rapidly, the regime has opted for a rapid boost in output by importing large fertilizer facilities from the United States, Western Europe, and Japan.

1. So far the Chinese have ordered 13 urea plants which will increase urea production 8-fold over present levels when they come on line in the late 1970s.

D. Large investments in synthetic fiber plants are aimed at relieving the pressure on agriculture to provide additional natural fibers at the expense of grain.

E. Considerable investment also has been made in water conservation, mostly in small projects in the south. In north China, major new investments will be required to provide large-scale irrigation systems.



F. In the meantime, China is spending large amounts of foreign exchange on grain and cotton. Approximately 7.5 million tons of grain, valued at \$750 million, were imported in 1973. Cotton imports also rose sharply to \$350 million in 1973.

IV. As for industry, China has vast resources of most raw materials, and industrial output is growing rapidly.

A. Energy resources are no problem. Coal and hydroelectric resources are huge, and petroleum deposits appear to be abundant:

(1) Recent development policies have emphasized petroleum, while coal and electric power are falling short of needs.

(2) Petroleum output exceeded 50 million tons (1 million b/d) in 1973, enough to meet domestic needs at the present level of industrialization and allow for exports of about 1 million tons to Japan. Production from land fields is being developed rapidly, but off-shore exploitation will require further imports of expensive exploration and production equipment. Large investments in pipelines, railroad cars, port facilities, and tankers also will be needed to distribute the growing volume of petroleum.

(3) Coal mining is being expanded with imported equipment, and electric power production is being strengthened by imported gas turbines, steam turbines, and boilers, as well as by expanding domestic production of generators and other electrical equipment. Steam power technology is far behind that of the West, and only a small portion of China's vast hydroelectric potential has been tapped.

B. Though considerable progress has been made in *metallurgy*, particularly steel, China is still a net importer of metals:

(1) Crude steel production, estimated at 25 million tons in 1973, was supplemented by imports of 3 million tons of high-quality finished steel. Both the raw material and finishing sectors are lagging. China is import-

ing increasing quantities of iron ore, steel scrap, and pig iron, and has recently negotiated for a \$400 million steel rolling plant from Japan and West Germany.

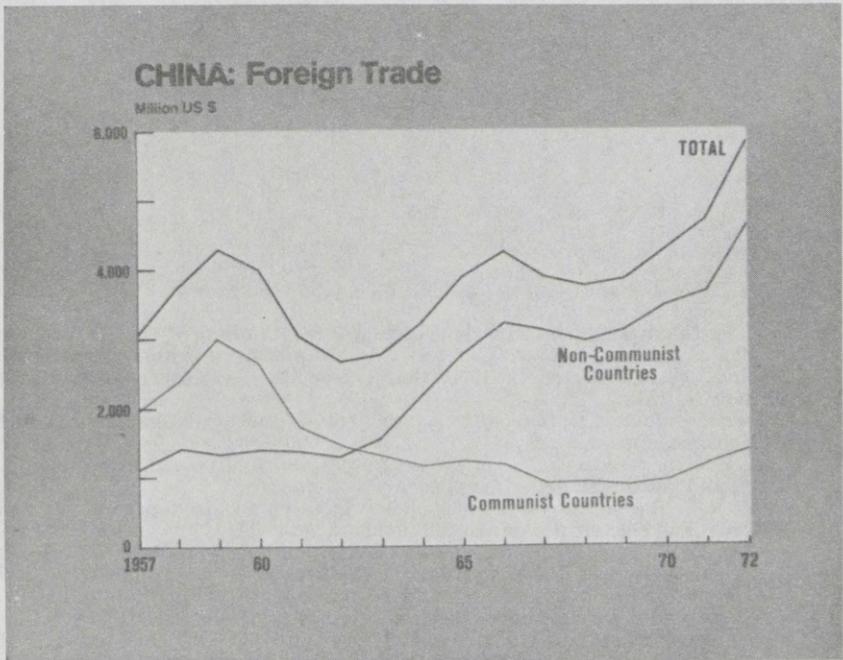
(2) Imports of copper and aluminum are rising because China has failed to add new capacity as needed. China also imports lead, zinc, nickel, platinum, chromium, cobalt, and other metals while exporting tungsten, antimony, and tin.

C. China is one of the world's largest cotton textile producers. Nonetheless, production barely keeps pace with population growth. Cloth rationing is still an essential economic measure.

D. Despite striking gains in the production of machine tools and other types of machinery, many varieties and sizes are still lacking. Large quantities of advanced production equipment must still be imported to avoid reduced growth rates and large technological gaps.

V. In the field of transportation, the Chinese have proven adept at building railroads and highways in mountainous terrain. They have also developed a small transportation equipment industry that produces railroad equipment and trucks. Nevertheless, primitive forms of transport still handle most local traffic.

A. Large quantities of transport equipment—including trucks, ships, commercial aircraft, and diesel and electric locomotives—have to be imported.

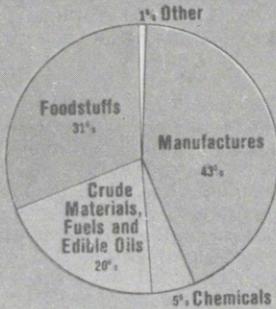


VI. The patterns of foreign trade shifted radically following the withdrawal of Soviet technicians in 1960. As you can see on this chart, in 1959 the trade was at a ratio of 70 to 30 percent in favor of Communist countries. Since 1965, the figures have been reversed.

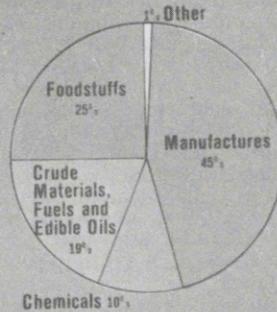
A. Although foreign trade is only a small component of China's economy, it has been shooting up in recent years. Total trade jumped from \$4.3 billion in 1971 to \$8.5 billion in 1973. At least half of this increase probably is accounted for by revaluation of world currencies and worldwide inflation.

## CHINA: Commodity Composition of Trade, 1973

### EXPORTS



### IMPORTS



B. Major exports are textiles, foodstuffs, and raw materials. Imports, as I have already mentioned, feature grain, fertilizers, machinery, and metals.

C. Trade with the United States jumped from \$110 million in 1972 to \$860 million in 1973. The United States was second only to Japan in China's foreign trade:

(1) The United States shipped nearly \$800 million worth of goods to China, including wheat, corn, cotton, soybeans, aircraft, and metal scrap.

(2) In return, the United States bought \$65 million worth of Chinese silk, pig bristles, fireworks, cotton fabrics, carpets, tin, and antiques.

D. In 1973, China contracted for \$1.2 billion in whole plants—mainly chemical fertilizer and artificial fiber plants. Medium-term credits are being used to finance about two-thirds of these contracts.

### Prospects—Mid and long range

VII. When we look at the mid and long range prospects for the Chinese economy, we believe that GNP should continue to grow by 4 to 5 percent annually. Such a growth would be sufficient to support continued expansion of industrial capacity, to supply the population at slowly rising levels of well-being, and to improve the inventory of modern weapons available to the armed forces.

A. The political campaign against Lin Piao and Confucius, however, should warn China watchers against facile straight-line projections of economic policy and growth prospects. Nevertheless, periods of political turbulence probably will have a smaller impact than in the past, because Communist economic organizations, controls, and priorities will be more resistant to change.

B. The pressure of population against the means of subsistence should gradually be relieved by the growth of national output and, over the long term, by some successes in population control measures.

C. Industrial output should increase about 8 percent annually, and agricultural output 2 to 3 percent.

D. For the next 10 years or more, China will continue to benefit from its relative industrial backwardness by obtaining plant and equipment abroad on which R. & D. costs have been paid off and technical problems ironed out.

VIII. As for economic priorities in the future, agriculture should continue to receive extensive support from the industrial sector. In any case, steady increases in yields per hectare will be essential.

A. Rising pressure from an increasingly literate and technically sophisticated population will probably focus more attention on consumer welfare.

B. In industry, technological improvements will be emphasized, though small, local plants will account for large portions of output of consumer goods, construction materials, and farm machinery.

IX. In the field of foreign trade, China's oft-stated goal of self-sufficiency in industry and technology is not likely to be attained in the foreseeable future.

A. Peking must continue to rely heavily on Japan, Western Europe, and the United States for various types of high-technology equipment.

B. The United States will have a particular advantage in the supply of civil aircraft, computers, communications equipment, oil exploration and drilling equipment, and specialized machine tools.

C. The United States will remain a major supplier of agricultural commodities, especially grain in poor harvest years—and cotton.

D. China, however, remembering its experience following the withdrawal of the Soviet technicians, will maintain a diversity of suppliers.

E. Finally, Peking will try to bring its U.S. trade closer to balance by modifying products to suit American tastes, and by expanding production of commodities with a ready market in the United States. Nevertheless, Sino-U.S. trade will continue to focus on U.S. exports.

#### *Expenditures for military programs*

X. I will conclude this prepared statement by discussing the Chinese commitment of resources to military programs.

A. Estimating the numbers of Chinese forces is difficult, but we believe they have nearly as many men under arms, as the U.S.S.R. More than 80 percent of these military personnel, however, are probably assigned to ground force units. The number involved with advanced weapons—such as strategic missiles, supersonic aircraft, and modern submarines—is small by either United States or Soviet standards.

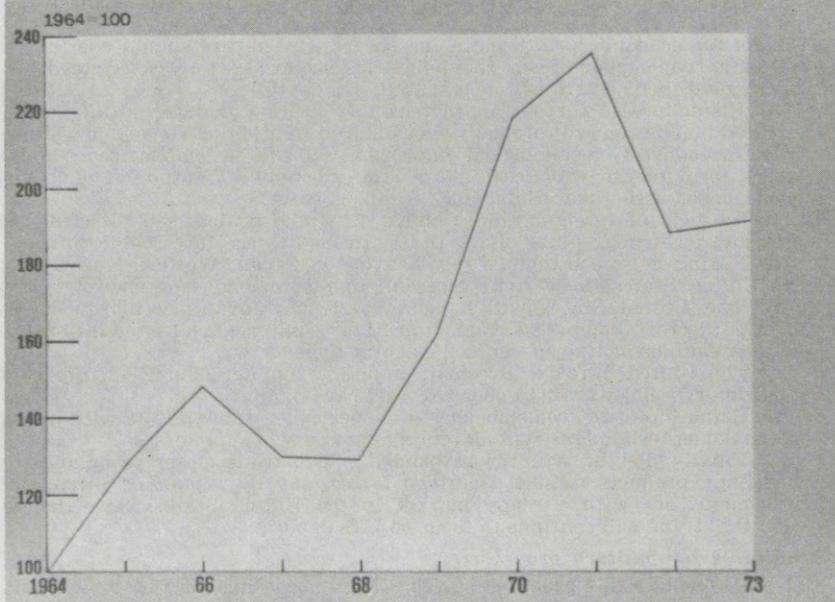
B. The Chinese are even more secretive about defense spending than the U.S.S.R.: They publish no information on their military expenditures. We have recently begun an effort, however, to estimate China's resource commitment to defense, employing methodologies similar to those used in estimating Soviet defense costs. The results of this effort are still preliminary, but a few generalizations appear to be valid.

C. The problem can best be approached by subdividing the question into two parts—defense operating costs and defense procurement costs:

(1) Defense operating costs would appear to have little impact on the economy, largely because of the extensive use of relatively unskilled manpower, which, in China, is certainly not a scarce resource.

(2) Military equipment procurement costs, however, impinge directly and heavily on the country's modest industrial base. The term "procurement" as we use it here includes only the cost of actually reproducing arms and equipment, and does not include any costs associated with research, development, and testing programs. We have insufficient information to develop valid estimates of resources devoted to Chinese military research and development.

## CHINA: Trends in Military Procurement



XI. According to our measures, over the past 10 years there has been a generally upward trend in Chinese military procurement, with two periods of rapid growth, each followed by a decline.

A. Of particular interest are the two occasions when the Chinese reduced procurement.

(1) The first occurred in 1967 when the disruptions of the Cultural Revolution caused about a 12-percent reduction.

(2) An even more drastic cut was made in 1972 when military procurement dropped by almost 20 percent, primarily as a result of a cut-back in aircraft production. The reasons for this recent decline is not yet clear. Contributing factors may have been:

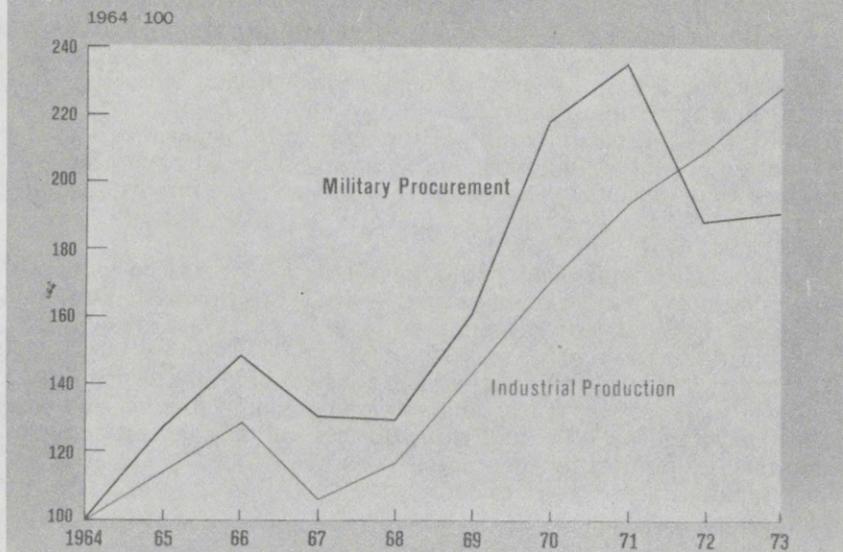
New priorities in favor of economic growth established by a less military-oriented leadership in the wake of Lin Piao's death in late 1971.

An inability to develop follow-on advanced weapon systems.

B. As you can see on the chart, procurement in 1973 increased slightly over the 1972 level, but still remains considerably below the peak of 1971. As this chart shows, it also is considerably below the United States and U.S.S.R.

XII. 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 dollar index of military procurement with—priced in dollars—the index of growth in industrial production.

## CHINA: Growth of Military Procurement and Industrial Production



A. From 1964 to 1971 military procurement rose considerably faster than overall industrial output. Since 1971, the trend has reversed. This decline in the defense share may be illusory, however, because some procurement funds may have been diverted into military research and development.

B. It should be borne in mind that military production preempts China's most modern production capacity and, more important, has first call on the Nation's finest scientific, engineering, and managerial talent. [Deleted.]

XIII. China's history of sudden bursts in defense production, and equally unexpected reductions, provides little basis for projecting future military procurement levels. Given the Chinese leaders' clear intention to develop modern, sophisticated weaponry, however, we expect the trend in procurement to be upward over the next few years.

### SPACE PROGRAM

Chairman PROXMIRE. How about the Chinese space program? Do you have any information on that?

Mr. COLBY. They have shot two, I think, space shots.

Mr. ASHBROOK. There were two shots with small payloads.

Chairman PROXMIRE. Did they put them into orbit?

Mr. ASHBROOK. That is right.

Chairman PROXMIRE. The hour is late. I am just going to take a few minutes to go over some requests for information, and I will not take much longer.

As you know, the CIA has been quite cooperative with the Joint Economics Committee in the preparation of various economic studies on the Soviet Union and China which we have conducted. We are grateful for that cooperation and for the valuable contribution you have made to our understanding of the economic conditions of these two countries. I think that the studies made, one under the chairman-

ship of Paul Douglas, and one at the very helpful suggestion of Senator Javits, have been two of the most useful studies Congress has had and this country has had, because they were done by a number of scholars and groups, and the CIA had a very large and significant input.

We would like to draw further on the information gathering and analytical capabilities of the CIA.

Would you be agreeable to providing us with information about the Russian and Chinese economies on a more regular basis, at least annually, so that we can step up our review of these two important economies?

Mr. COLBY. Certainly.

Chairman PROXMIRE. And would you instruct your staff to cooperate with our staff so we can have access to the kinds of information we need to improve the quality of our studies?

Mr. COLBY. Certainly.

Chairman PROXMIRE. Would you agree to provide to this committee each year a reconstruction or analysis of the Soviet budget showing planned expenditures, actual expenditures by major functions or sectors, including defense spending?

Can you do that?

Mr. COLBY. I think so.

The analysis of the Soviet budget.

Mr. DIAMOND. Yes, we can do that, Senator.

The defense element will cause us some pain.

Mr. COLBY. Mr. Chairman, I do get back to the fact that I am quite content to provide these answers to the committee on a classified basis and to declassify as much as we possibly can declassify. There will be some things—a lot of the things we had today were very highly classified, quite frankly, and we will have to take them out, but we will lean forward to declassify as much as we possibly can.

#### UNCERTAINTY OF SOVIET DEFENSE SPENDING ESTIMATES

Chairman PROXMIRE. Is it fair to say there is a large area of uncertainty in our knowledge about Soviet defense spending, and that there may be a substantial margin of error in any individual estimate?

Mr. COLBY. That is a hard adjective to sign up to, Mr. Chairman. It does not have any very specific reference point. I would not say that it is a large area of error. I would say that there certainly is some error.

Chairman PROXMIRE. Would you say it is a 10 percent margin of error you have?

Mr. PAISLEY. It would vary with that portion we are talking about.

Chairman PROXMIRE. No. 1, you are positive on the basis of the 25 percent difference you have testified to, that they are now definitely spending more in resources, absolute resources, in research and development than we are.

Is that right?

And however, they may be spending not 25 percent more, maybe only 10 percent more or maybe 40 percent more.

Mr. COLBY. That was not what they are spending, Mr. Chairman. That was our valuation of what that would cost here.

Chairman PROXMIRE. OK; I am happy to get that correction.

Mr. COLBY. So it is different.

Chairman PROXMIRE. I should not say they are spending more—they are putting more resources in, then, on the basis of this evaluation, where we price out their R. & D. in terms of our own, what it would cost to do the same amount here. They are spending about 25 percent or they are devoting about 25 percent more resources than we are to R. & D.

Mr. COLBY. Yes.

And that could be what, 15 or 40, depending on the error, or something like that?

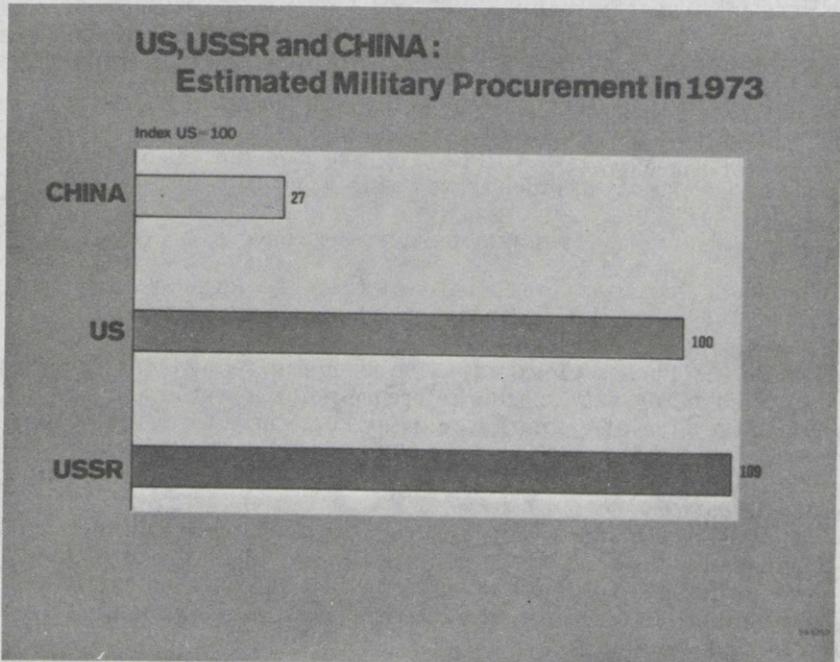
Mr. PAISLEY. Yes. I would say we would subscribe to that.

Chairman PROXMIRE. And procurement was close, I understand, it was \$18 billion for us, \$18.5 billion for them. That is only a difference of about 2 or 3 percent. I take it that we might be spending as much as they are.

Mr. PAISLEY. We consider that rough equality.

Chairman PROXMIRE. All right.

[The following chart was subsequently supplied for the record by Mr. Colby in the context of the above interrogation by Chairman Proxmire:]



Chairman PROXMIRE. Will you agree to provide the committee on a regular basis some information showing the size of the Soviet defense budget, comparing official Government financial and budgetary data with your own building block estimates broken out for major programs, such as ground forces, naval forces, and the like, and showing what goes in that budget for R. & D., space, and atomic energy?

Mr. COLBY. Certainly.

Chairman PROXMIRE. And also indicate to us how much confidence you have in the various estimates.

Mr. COLBY. Certainly.

Chairman PROXMIRE. And then designate some of your staff to work with our staff, so that economic and budgetary information can be requested and obtained on a prompt and regular basis, so that the staff can be briefed from time to time on issues we are concerned about.

Mr. COLBY. I would request with respect to the staff, as distinct from the members, Mr. Chairman, that we could go through the normal clearance procedure because certain of this information does get into high clearances. The members, of course, there is no clearance of members at all.

Chairman PROXMIRE. That is absolutely correct.

Well, thank you very much for a superlative job. I just wish the whole membership could have been here this morning. As you know, the recess started yesterday, for the Senate and for the House, too.

Senator Schweiker was here, but I am sure that the members will be very interested in reading this, and I urge you to declassify, and make as much available as possible, because the more you can make available for the record on an unclassified basis, the more productive this hearing can be.

I want to thank you very much. The subcommittee stands adjourned.

[Whereupon, at 12:55 p.m., the subcommittee adjourned, subject to the call of the Chair.]



