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CENTRAL INTELLIGENCE AGENCY

1 February 1949

INTELLIGENCE MEMORANDUM NO . 127

SUBJECT: Significance of Western European Exports to the Soviet Bloc

1. General Statement.

a. The problem of this paper is to estimate the political and economic consequences to the Soviet bloc which would arise from the denial of imports of selected items from Western countries.

b. The Soviet Union and its Satellites have already met numerous obstacles in their quest for Western manufactures and raw materials. It is assumed that by a limited embargo they would be completely denied certain industrial requirements. It is further assumed that US export controls on items in the 1-A and 1-B lists will be continued and that the Scandinavian countries, the UK, Switzerland, Western Germany, and the other countries of Western Europe will strictly adhere to the embargo.

c. No attempt has been made to assess the feasibility of applying such an embargo.

d. In this report the following are considered Soviet Satellites: Finland, Poland, Czechoslovakia, Hungary, Rumania, Bulgaria, Yugoslavia, and Albania. The Soviet Zone of Germany is also included in this category. Austria is not included since it is subject to a pro-Western government, and Soviet interference with this government so far has not been decisive. Economically the country operates as a unit, with Soviet influence limited mainly to Soviet-controlled industrial and petroleum interests. For all practical purposes, Finland must also be considered a part of the Soviet bloc, even though the Soviet Union has thus far not seen fit to make it a full-fledged satellite. The Kremlin can reduce Finland to complete dependence whenever such a move is required by Soviet policy. Yugoslavia, on the other hand, is becoming increasingly isolated from the Soviet bloc because the Soviet Union cannot now afford to meet Tito's terms of political and economic equality.

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2. Conclusions.

a. Economic Consequences.

If the USSR and its Satellites are unable to procure certain essential industrial requirements from Western Europe, economic development in the Soviet orbit would be seriously retarded and production in many lines would decline. Important segments of the industrial economy could not meet their plan requirements in terms of physical units produced. Capital goods production, which is the foundation for the expansion of industrial potential for war, would be seriously impeded.

Industrial retrogression would be especially evident in the Satellite states since the Soviet Union has priority on essential machinery, equipment, spare parts and industrial raw materials. A serious economic decline in the Satellite states would offer an excuse for Moscow to tighten its control further; however, despite such moves, the Satellite contribution to Soviet economic strength would be considerably less. Czechoslovakia, Finland, Hungary, Poland and the Soviet Zone of Germany would be more seriously affected than the predominantly agricultural countries of Albania, Bulgaria, Rumania, and Yugoslavia. The avowed Soviet policy of accenting heavy industry and military production at the expense of consumers goods would become more evident. Additional emphasis would be directed toward production of machinery, equipment, industrial raw materials and armament, while consumer lines of production would be further curtailed. Agricultural production, however, would probably be satisfactory.

The dollar volume of West European exports to the Soviet bloc has not been impressive in either the prewar or the postwar period. The types of items, however, are such that they are of critical importance to the industrialization of the entire eastern area. Without these exports from the West many basic components of the Soviet orbit economy would suffer.

Electric Power.

The primary shortage in the electric power industry throughout the Soviet bloc is in electrical equipment such as steam turbines, water wheels, large generators, boiler sheets and tubes, and, in spare parts for replacements in existing installations.

The expansion of electric power has a leading priority in most of the countries throughout the bloc. The expansion of many other industries is predicated on the achievement of plans for electric power.

Petroleum.

Insufficient quantities of refinery and oil-well equipment with which to meet the planned production of high-grade refined products constitutes the major difficulty of the oil industries of the USSR and Satellites.

Shortages of drilling equipment and pipe will hamper the expansion of crude oil production and the continued shortage of catalytic cracking equipment will have a serious effect on the supply of high-octane gasoline. Shortages of petroleum will have a disadvantageous effect not only on the military aspects of expansion (particularly the Soviet air arm) but on many industries as well.

Iron, Steel and Ferro-Alloys.

The Czechoslovak and Polish iron and steel industries are dependent upon large imports of high-grade Swedish iron ore. Discontinuance of delivery of Swedish ore would result not only in a decrease in production in the immediate future but also in the following two or three years until blast furnaces could be converted to process exclusively the lower grade Soviet bloc iron ore.

All the industrial Satellites are basing plans for the modernization and expansion of existing facilities upon the procurement of steel producing equipment from the US and the UK, without which iron and steel production goals will not be attained.

Non-Ferrous Metals.

The shortage of tin in the Soviet bloc necessitates large imports from outside sources. The airplane manufacturing and food packaging industries are especially dependent on this tin supply and any export restrictions by the West would reduce production.

The copper supply of the Soviet bloc is sufficient if the Yugoslav supply is included. Exclusion of Western and Yugoslav copper from the Soviet bloc would have serious effect on numerous branches of industry.

Although a lead embargo would have immediate disadvantageous effects in the Soviet bloc, intensification of efforts would be made to increase domestic production in the long run. Yugoslavia could ease the shortage but apparently is unwilling to do so at present.

Chemicals.

The USSR and Satellites are short of certain chemical equipment, such as glass-lined reactors, special valves, recording and control apparatus, many alloys for special uses, and vacuum and pressure pumps. Without the importation of this equipment from the West, Soviet chemical production in many lines would become steadily less efficient until such time as the USSR has the technical knowledge and installs the industrial capacity to supply the Soviet needs.

Rubber.

The requirements of the Soviet bloc for natural rubber must be met by imports from rubber producing areas. Reported purchases and deliveries for 1948 are sufficient for at least one year without further imports, and by conservation, present stocks might last substantially longer. Synthetic rubber production in USSR and the Soviet Zone of Germany is large, sufficient to supply all present requirements of synthetic rubber. Additional facilities are planned for Poland, Czechoslovakia, Yugoslavia, and Bulgaria. Production may be delayed and decelerated by lack of equipment and spare parts.

Transportation.

The Soviet orbit, with the exception of Yugoslavia, will attain its railroad freight transportation plans regardless of an embargo. The embargo will, however, impair attempts to expand capacity. Failure to obtain rails, track materials, electrification equipment, motor trucks and components, steel ship plates and marine equipment will prevent realization of plans for railroad construction, double-tracking, railroad electrification, highway transport and ship building.

Machine Tools and Precision Instruments.

Basically, the USSR is still a machine tool importer, even though temporarily satiated by a glut of dismantled supplies which have not been adequately absorbed by the economy. The industry is backward in engineering processes and machinery design and its production is over-simplified in range of size and types. Although Czechoslovakia produces quality machine tools, quantity of production is low.

Quality and quantity of production of precision instruments in the Soviet bloc is low, although some improvement may be expected in time due to availability of German technical personnel and production resources in the Soviet Zone of Germany.

Antifriction Bearings.

Expansion of many industries within the entire Soviet bloc would be impossible if imports of antifriction bearings and producing equipment are embargoed. Such restrictions immediately affect the whole field of industrial machinery and would have far-reaching effects on the military and industrial potential of the USSR and Satellites.

b. Political Consequences.

(1) General.

(a) The political effect of economic dislocation and distress in the Satellite area would be strongest in industrialized countries: i.e., Finland, Czechoslovakia, Poland, and Hungary. It would be somewhat weaker in the agricultural Balkan countries.

(b) Although political and social unrest might increase as a result of a further lowering of the living standard, the Soviet-backed local governments would be able to prevent this unrest from getting out of control. Purges would be initiated or continued; however, neither dissatisfaction with living conditions nor opposition to the Communist regimes would result in defections similar to that of Tito. Consequently, major political changes could not be expected.

(c) Soviet and Satellite propaganda would try to evade responsibility for the Kremlin's inability or unwillingness to extend assistance, and would make the US the scapegoat for economic distress.

(2) Specific.

(a) Finland. As one of the most anti-Communist elements in Eastern Europe, the Finnish people would, at least temporarily, recognize the motives for a Western embargo of essential items to the Soviet orbit. If this sympathetic view should become too articulate, the Kremlin might bring about the overthrow of the present government and impose a Communist regime upon Finland.

(b) Yugoslavia. This nation, which is no longer within the Soviet orbit except for its ostensible support of the USSR in foreign affairs, has been for some time subject to virtual economic boycott of certain critical imports from the Soviet bloc. To cut off Western trade with Yugoslavia would tend to worsen its predicament to the extent that the stability of the Tito regime might eventually be endangered and that it might be supplanted by a government subservient to Moscow.

(c) East Germany. Economic dislocation and deterioration of prevailing conditions in East Germany would strengthen German opposition to the USSR but would not impair Soviet control of this region. On the other hand, continued economic distress would militate against the success of a German puppet regime upon which the Soviet authorities could rely.

(3) Conclusion.

It is estimated that limiting trade with the non-Communist world would put an additional burden upon the already strained Soviet system of control. Economic distress in the Satellite countries would prevent the development of that stability in Eastern Europe which is a vital objective of Soviet policy. Since consolidation of the Soviet bloc is based upon the integration of Satellite politics, economy, and military strategy, the obstruction of any one of these aspects would affect the success of the others.

Consequently, it is believed that economic dislocation in the Satellite area would considerably delay or impede Soviet political and military plans for expansion.

3. Economic and Political Objectives.

a. Economic Goals.

The primary economic goal of the USSR is the development of its economic potential for war. Within its own borders the Soviet Union has furthered this objective by concentrating on heavy industry and military production and by the geographical concentration of industry in strategic areas. In the Satellite countries, the same objectives are evident and are implemented through Soviet economic control and coordination of the various economies. Only Yugoslavia and Finland cannot currently be considered as full members of this economic orbit, although Finland's economy is strongly influenced by political ties with Moscow.

In the Satellite sphere, the long-range goal of the Kremlin is complete economic integration of the Soviet bloc. The most recent step in this direction was the creation of the Council of Mutual Economic Assistance in January of this year. This simply formalized measures which had already been taken for coordinating these economies and provided a more effective mechanism for closer coordination and eventual economic integration.

(1) Economic Coordination.

Since the conclusion of hostilities in Europe, the USSR has actively pursued a plan of economic penetration and domination of the Satellite countries and the occupied areas. This domination has been achieved by various means, such as peace treaties, secret protocols, bilateral trade, mutual assistance, economic collaboration pacts, and general control of internal economic life through political ties. Thus, the Soviet Government directly, or through the puppet Communist regimes, has broad control of the major aspects of economic planning, production, and distribution. To date, many of the agreements for coordinating economic activity have not been sufficiently implemented to be of real value, and no effective system for over-all direction has been established. However, there is considerable evidence to indicate the extent of existing control.

(a) The Kremlin has, in several instances, either dictated the outline of the economic plans of certain countries, or has at least required that such plans be submitted for approval.

In Czechoslovakia the USSR has ordered a shift from light industry, a leading source of foreign exchange before the war, to heavy industry, the products of which are directed to the Soviet Union or certain of the less industrialized Satellites. To assist in this

program, in December 1948, Moscow provided a 200 million dollar loan in gold and hard currency to replenish Czechoslovakia's depleted foreign exchange balance. The important stipulation was that Czechoslovakia procure sufficient machinery and industrial raw materials to meet Soviet demands for fabricated and semi-fabricated products.

In Rumania, Czechoslovakia, and Hungary, there is evidence that the Soviets have ordered military production for the strategic benefit of the USSR. Expanded munitions output, construction of military airfields, and the development of rail lines for strategic purposes are outstanding examples of such production.

Tito recently complained that the Kremlin had planned to give Yugoslavia the status of a "colonial," for the purpose of supplying the orbit with certain industrial raw materials. Tito objected to this Moscow plan, and his dissatisfaction was undoubtedly one of the main factors in the Cominform rift.

In addition to evidence by indirection that the Soviet planners dominate the Satellite economies, there are statements and actions of individual states which more directly confirm this position. The belated withdrawal, on Soviet insistence, of Poland, Czechoslovakia, and Finland from the first Marshall Plan discussions in Paris, and Bulgaria's announcement of Kremlin approval of their new economic plan, are but a few of the numerous admissions of Soviet authority.

(b) In the former enemy countries of Rumania and Hungary, Soviet control is facilitated through the management of the jointly-owned companies, involving the most basic industries such as oil, shipping, aviation, banking, and chemicals; and through reparations. It is estimated that substantial portions of the trade in these countries is accounted for by reparations deliveries and products of the joint companies. In Finland, the USSR also exercises control through reparation demands.

(c) The USSR is intensely interested in the joint industrial developments within the area, as evidenced by the insistence on Polish-Czechoslovakian economic cooperation in the creation of a "Second Ruhr" in the Silesia-Morawska Ostrawa Basin, and in the joint use of the Oder River and the port of Stettin. It is reported that Moscow has undertaken to supply Poland with steel mill equipment and other heavy machinery for the Silesian Basin project. Similar projects are being worked out between other countries.

(d) Mutual economic assistance pacts and the military protocols often appended thereto, are in existence among virtually all of the orbit countries. These pacts provide for exchange of commodities and technical assistance, division of production tasks, foreign exchange credits, standardization of products, integration of armament industries, and, in the event of war, pooling of military supplies, economic resources, communications, and transport.

(e) Soviet supervisory and technical personnel are present in the more strategic industries in the various Satellite countries. Their presence is reported in munitions and war material industries, such as Skoda, in addition to joint enterprises where they would be expected. In some instances, they are military personnel.

(f) At this stage, the Moscow domination of collectivization of agriculture in the Satellites has been indirect and has manifested itself primarily through (a) the promotion of political leaders favoring the program and demoting those opposed, (b) the use of the Cominform to propagandize the program, such as the 28 June 1948 blast against Tito charging him with favoring the individual wealthy farmer class, and (c) the use of the Communist (i.e., Soviet) -controlled Satellite press to publish articles glorifying the life on the collective farms of the USSR.

(g) The Soviet Union has for some time been making a vigorous and sustained effort to integrate inland traffic within the orbit through agreements, joint ownership of transport companies, and direct control over the transport facilities. The degree and type of Soviet transport control varies in each country but is greater in Bulgaria, Czechoslovakia, Hungary, Poland, and Rumania, than in Yugoslavia and Finland. Soviet Army officers are placed at all levels of administration and operations on the Hungarian railroads. Control by the Soviets in Bulgaria and Czechoslovakia is facilitated by existence of organizations for the over-all coordination of transport. In Poland and Rumania, ministries of communication appear to be the instruments of Soviet control. In addition, joint Soviet-Satellite companies have been established for inland waterway transport in Hungary, Yugoslavia, and Rumania, through which control can be exercised by the Soviets. Since the Tito rift, Soviet control has been relaxed over all transport in Yugoslavia except inland waterways. In the case of Finland, the Soviets have only a transit agreement.

(h) The USSR, to a large extent, controls distribution as well as planning and production. In internal trade, there are many instances where industries in which the USSR is primarily interested are given priority in the allocation of raw materials, equipment, and labor. In bilateral trade between the Satellite states, the USSR has attempted to establish a higher degree of self-sufficiency through a shift away from prewar dependence on Western countries. The forced alteration of the trade pattern in general has not been economic, in the short run, and, despite this postwar percentage decline in trade with the West, over fifty percent of total trade is still with countries outside the Soviet orbit.

In addition to shifting the trade pattern between Satellite countries, and between the Satellite states and the West, the Soviets have employed foreign trade to exploit this area for their own benefit. Not only has the Kremlin used reparations and the joint companies to drain these economies, but they have also largely dictated the items to be exchanged and the terms of trade. Price fixing on imports and exports has been a particularly useful instrument in this respect. Control over gold movements and hard currency holdings has given further leverage to the Kremlin.

The USSR not only benefits from production within the Soviet domain, but also often gains from Satellite trade with the West, either through re-exports to the USSR or through Satellite procurement of raw materials which are fabricated for export to the Soviet Union.

(i) The existence of dictatorial governmental powers has enabled the Soviet Union, since its inception, to maintain a strong grip on the economic life of the country. Based on periodic planning, the principal feature of the Soviet economic structure, various economic ministries are assigned specific tasks and goals by the State Planning Commission. This planning body, together with the Ministry of Finance which controls the highly centralized banking system, currency, and credit, wields tremendous power over Soviet economic production.

The introduction of the Soviet pattern of economic organization into the Satellite areas is clearly evidenced through a series of measures adopted by the latter. These measures have affected every aspect of economic activity of the Satellites. The ownership of industry, banks, insurance companies, and trading companies, was given to the states through the process of nationalization. In addition,

Economic Ministries and Industrial Centers (or their equivalent) have been setup in many states to supervise planned production in the factories.

The elimination of privately-owned banks and insurance companies has placed the entire financial resources of these countries at full disposal of the governmental agencies. The governments thus exercise full control over the credit policies and coordinate financial measures with production planning. The control of budgetary expenditures and revenues enables these nations to divert funds for any purpose desired, such as development of the war potential, without the Knowledge or acquiescence of the population. By eliminating private trading companies, the governments have acquired a monopoly in foreign trade, one of the most important instruments for regulating internal economic life. Private trading in precious metals and foreign exchange is strictly forbidden.

It must be emphasized that many of the aforementioned measures for coordination of the Soviet and Satellite economies have been more apparent than real. No over-all effective control has yet been established. However, the framework and experience for eventual economic integration is gradually being developed in the fields of planning, production, distribution, foreign trade, and economic organization.

(2) Economic Plans.

USSR

The Soviet fourth Five-Year Plan has as its primary objective "the restoration and development of heavy industry and railway transport, without which the rapid and effective recovery and development of the entire national economy would be impossible."

The iron and steel industry, to a large extent, sets the pace for the development of all industry. According to plan, in 1950 the smelting of iron and steel and the production of rolled goods is to exceed the prewar level by 35 percent. Production of coal, petroleum and electric power in 1950 is planned to be 43 percent above the prewar figures. By 1950, the machine-building industry is to have doubled its output as compared with the prewar effort. The production of synthetic rubber is to be doubled.

On the other hand, per capita production of textiles, footwear, and hosiery in 1950 is planned at an average level of only 23 percent over the extremely low prewar level. In 1950, the per capita annual availability of shoes and hosiery will be approximately 1.2 and 2.9 pair respectively, if these plans are met.

The per capita production of grain (predominant in the Soviet diet) in 1950, if the production plan is met, will be about seven percent below the 1940 level.

Including grain with vegetable oils, sugar and fish, the average per capita increase in production in 1950 as compared with 1940 is estimated at only six percent.

Despite the huge amounts of machinery, equipment, and raw materials obtained as war booty, reparations or "imports" from Germany, Austria, and Eastern European countries, the USSR will require many imports.

Production in Leading Soviet Industries
(1940 and 1950 plan)

	1940 Actual	1950 Plan (in metric tons)	Percent Increase over 1940
Iron	15,000,000	19,500,000	30%
Steel	18,300,000	25,400,000	39%
Rolled Metal	13,100,000	17,800,000	36%
Coal	166,000,000	250,000,000	51%
Petroleum	31,000,000	35,400,000	14%
Electric Power (KWH)	50 billion	82 billion	64%

Satellites

Economic plans for the development and strengthening of the various nations, controlled directly and indirectly by Moscow, reflect a high degree of uniformity in the broad objectives.

In all countries the accent on the development of heavy industry will be at the expense of the economic level of the average consumer.

In those countries where collectivization of agriculture is to take place, the Government's control over the agricultural economy will be at the expense of the farmers' standard of well-being and freedom.

In the more industrially advanced countries, such as Czechoslovakia, Poland, and Hungary, the accent will be on the production of finished and semi-finished products, including machinery, chemicals, transportation equipment, and rolled steel. In the industrially backward countries, such as Bulgaria, Rumania, and Albania, the emphasis will be on the extractive, metallurgical, and power industries.

The role of foreign trade in Satellite plans is and will continue to be, important to the attainment of these industrialization goals; the composition of import requirements will strongly reflect the emphasis on heavy industry.

Bulgaria

The Bulgarian Five-Year Plan became effective on 1 January 1949. In this plan, greatest importance is attached to expanded capacity and production in coal, electric power, construction materials, metallurgical goods, machinery, heavy chemicals and agricultural machinery. Light industry is scheduled for relatively smaller gains, but is to be sufficiently expanded to provide an exportable surplus. The over-all increase in industrial volume for the five-year period is planned at 119 percent, and heavy industry alone is to show a 320 percent rise. However, even this impressive percentage advance will not give an industrial base to the Bulgarian economy worthy of international note.

Under the plan, foreign trade is to supply a part of the industrial requirements for machinery and materials. Although light industry is scheduled for relatively small gains, it will be sufficiently expanded to provide an exportable surplus to offset imports of heavy industry.

Czechoslovakia

The bill for the Czechoslovak Five-Year Plan went into effect 1 January 1949. Primary emphasis has been placed on the development of heavy industry as opposed to light industry. The volume of industrial output is

to increase by 57 percent, metal production by 93 percent, and the heavy machinery industry output by 300 percent. Since Czechoslovakia is already a highly industrialized country, the achievement of these goals would add significantly to Soviet economic potential.

Prior to the war, light industry was a leading source of foreign exchange. This means that some substitute for the prewar exports of light industry must be found. The foreign trade plan is organically linked with the economic plan, and the ability to import (particularly from the West) will have considerable bearing on the attainment of industrial objectives.

Finland

Finland has no economic plan similar to those of the USSR or the Satellite countries. Industrial enterprise is based on forest products, and leading industries are engaged in the production of lumber, pulp, and paper.

As early as 1945, the gross value of Finland's total industrial production exceeded that of 1938 by 50 percent with the lumber and wood-products industry exceeding the 1938 level by 42 percent, in terms of gross value of products.

Finnish economy is strongly dependent upon foreign trade. Current foreign trade is being influenced by needs of shipbuilding, mechanical, electrical and wood-processing industries working for the war reparation requirements. Only the surplus will be available for export to other countries to obtain foreign exchange for the payments of imports to Finland.

Machinery, trucks, and other aids to production accounted for a large part of Finland's imports. It is conceivable, therefore, that a total embargo on exports to Finland might have some effect on industrial production, at Finland's expense, however, rather than at the expense of reparations to the USSR.

Soviet Zone - Germany

The Two-Year Plan of the Soviet Zone of Germany, adopted 30 June 1948, is almost completely unrealistic because it takes little account of prevailing conditions in the Soviet Zone, particularly the acute shortage of raw materials. Virtually the only natural resources of the area are extensive deposits of lignite (brown coal) and vast reserves of potash.

Overall production in 1950 is to increase 20 percent over 1948 to a level of 81 percent of that of 1936. Steel production in 1950 is to be more than four times that of the low level of 200,000 tons in 1948. Lignite output is to be raised to 123 million tons or 116 percent of 1947 output. However, there is little prospect of significantly improving the economic status of the Soviet Zone unless the USSR reverses its present dismantling and reparations policies. The labor force will be ample, but machinery and equipment will be inadequate.

Even though there may be increases in the production of consumer goods, the population will hardly benefit, since reparation payments will probably absorb such increases. In agriculture, the Zone is reasonably self-sufficient.

It is probable that a large proportion of increases in production of commodities important to the USSR will result from an increase in productivity of labor brought about through a system of food incentives.

Hungary

In 1946-47, Hungary prepared the Three-Year Plan for recovery and development. Under its schedule, industry is to exceed the 1938 production level by 27 percent in 1949-50. The largest increases were to be registered in the production of machinery (68 percent over 1938), electric power (42 percent), chemicals (40 percent) and mining (38 percent). More specifically, annual coal output is to reach 11.5 million metric tons, production of rolling stock and locomotives is to be 6,500 and 160 respectively; tractors are to be turned out at the rate of 3,700 per annum, and electric power capacity is scheduled to yield two billion KWH annually. Steel output, by the planning year 1948-49, should run about 800,000 metric tons annually.

As in the cases of Czechoslovakia and Poland, the success of the plan hinges to a large degree on meeting the foreign trade goals. Machinery, industrial equipment, transportation equipment, lumber, iron ore, coke, scrap metals, non-ferrous metals, ferro-alloys, cotton, and wool are all marked for import.

Poland

Although the output of consumer goods was stressed in the first years of the current Four-Year Plan (1946-1949), capital goods and the extractive industries have been receiving increasingly greater attention in each succeeding year. This pattern of production, accenting heavy industry, is similar to the economic trend in the other Satellite countries.

Largest increases over the prewar level of production are assigned to coal, coke, electric power, locomotives, rolling stock, agricultural equipment, and chemicals. Steel and metal working machinery are also marked for sizable advances. In general, the per capita production of producers' goods should be 250 percent above the 1938 level.

As a partial indication of actual industrial strength, Polish industry by 1949 should be producing 8 billion KWH of electric power, 80 million metric tons of coal, 1.5 million metric tons of rolled steel, 300 locomotives, 14,800 freight cars, 6,550 pieces of metal and woodworking machinery, and 92,000 metric tons of sulphuric acid.

Considerable dependence is placed on the foreign trade section of the plan which in the last year, 1949, is to provide substantial quantities of raw materials and investment goods through imports. Foreign capital is presumed to make up 15 to 20 percent of the investment total.

Rumania

Rumania has prepared no long-range economic plan similar to those of the other Satellites. Immediate objectives have been announced in a One-Year Plan for 1949, with primary emphasis assigned to the development of heavy and extractive industries. More specifically, this includes significant increases in the production of crude oil, iron ore, cast iron, processed metal products, agricultural machinery and implements, coal, lumber, cement, caustic soda, sulphuric acid, lampblack, and cotton and woolen textiles. Of these industries only petroleum has any real international significance, and Rumania's industry in general is still in the incipient stage of development.

The export-import program is an integral part of the plan and the expansion of trade is essential to the attainment of the plan objectives.

Yugoslavia

At the inception of the Five-Year Plan in 1947, speeches by Tito, Hebrang (Chairman of the Federal Planning Commission), and Kidric (Minister of Industry), all emphasized in the strongest terms the contention that the foundation of the Plan is increased production for heavy industry, mining, electrification, and the rehabilitation and new construction of communication and transport facilities.

These objectives were restated by Tito in a speech on 26 November 1948, in spite of his admission of difficulties arising

from the changed relations with his former allies. He said, "The main target for the 1949 phase of the Plan will be capital construction in basic heavy industries and housing for the rapidly increasing industrial population." He strongly asserted that "local interests much not dislocate the general plan" and added "after we have created the basic conditions of our industrialization.....then we will throw ourselves into production of articles needed by our people."

Combined planned production of industry, mining, and electric power in 1951 is to be almost five times the 1939 level, with industrial production at 64 percent of total production in 1951 as compared with 45 percent in 1939. Of total industrial output the production of capital goods in 1951 is to be 57 percent of the total while the production of "consumption items" is to be 43 percent. This is an exact reversal of the situation in 1939.

Strong efforts are being made to expand vitally-needed foreign trade, particularly in view of the fact that the USSR has reduced the volume of trade with Yugoslavia by seven-eighths. Yugoslavia has recently executed a $120,000,000 short-term trade agreement with Great Britain, with provision for negotiation of a long-term agreement. Yugoslavia is also trying to expand trade with Switzerland, Sweden, and the Netherlands. A significant item, under Belgrade date line of 23 January 1949, is the reported shipment from Yugoslavia to the US of $3,676,000 worth of non-ferrous metals since 1 December 1948, an amount almost equal to similar total shipments in the year 1947.

b. Political Goals.

Orthodox Communist doctrine considers the capitalist system a declining civilization, to be replaced by the "socialist" system, and precludes the possibility of the enduring coexistence of the two. Implicit in this doctrine is the unchangeable goal of Soviet foreign policy: eventual domination of the nations of the world through universal acceptance of the Communist ideology as it is interpreted in Moscow. While the means by which this goal is to be attained will vary from region to region, the Kremlin's basic policy in Europe is believed to be the complete consolidation of Eastern Europe, including East Germany, as a bridgehead vital to Soviet security. This consolidation can be achieved only by suppressing nationalism in the area. The Cominform was organized to achieve this along with political conformity. The organization of an Economic Council formalizes economic coordination. The possible future establishment of a Defense Council — following the conclusion of a North Atlantic pact — may well coordinate the Satellite area militarily under Soviet Command.

Finland where the Kremlin has not yet established political control is as yet free of the degree of integration achieved in other Satellites, though the USSR may decide, at its leisure, when and how to establish such control.

Yugoslavia, having once been a leading satellite, resisted the Kremlin's exploitation and withdrew from the orbit, with the result that initial measures for economic integration and military coordination were interrupted. Since there is no chance for an immediate return to the Muscovite camp, Yugoslavia will remain, for the time being, outside the area of integration, even though it has not relinquished its theoretical opposition to Western "imperialism".

East Germany is scheduled for eventual integration into the Soviet orbit. The USSR must, therefore, attempt to break down German nationalism and to develop reliable Communist elements for the assumption of control. Communist political control is essential for any effective cooperation between East Germany, Poland, and Czechoslovakia, particularly in the field of economic planning.

It is believed that economic and military assignments to implement Soviet plans are given anywhere within the security zone on the basis of specific needs. With nationalistic rivalries eliminated, Eastern Europe will be organized as a unit, and the resources of the area -- political, economic, and strategic -- will be pooled and distributed under orders from Moscow.

4. Dependence on Western Europe for Selected Items.

(1) Electric Power.

With the exception of the USSR and Czechoslovakia, no country in the Soviet orbit appears to have facilities capable of producing all its requirements of mechanical and electrical machinery for generating electric power. To meet these requirements, there must be access to (a) foreign markets, which, for the principal items of electrical equipment are virtually limited to Western Europe, the British Isles, the Scandinavian countries, and the US; (b) reparations and requisitions; and (c) mutual assistance within the orbit.

It appears that since the war, the USSR and Czechoslovakia have not only restored but also somewhat augmented their electrical manufacturing industry and should, therefore, be in a position to render some assistance to the Satellites. The amount of this assistance cannot now be accurately measured, however, and it would be seriously affected by restriction of imports from foreign markets, which are now important sources of electrical equipment.

Finland, Poland, and Hungary have significant electrical manufacturing industries, which, however, are not large enough to be of material assistance to the other Satellites. The remaining countries of the orbit are largely dependent on outside sources for heavy mechanical and electrical machinery and equipment.

The oft repeated objective of greater mechanization and electrification of manufacturing processes cannot be attained without adequate supplies of electric power. While old methods can still be relied upon, production goals, based on greatly increased use of electricity, cannot be reached without it.

The cumulative effect of an early total embargo of exports of electrical machinery and equipment, such as steam turbines, water wheels, large generators, and boiler sheets and tubes, would almost surely be failure to reach industrial goals in all the orbit countries, with the possible exception of the USSR itself. For example, assuming that the USSR and Czechoslovakia can take care of themselves and render some assistance to the Satellites under present conditions, if needs now met from sources outside the orbit were borne by the manufacturing facilities of the USSR and Czechoslovakia, they could not meet the added requirements and still realize their own industrial expansion plans.

A total embargo, aside from its immediate result--failure to reach the planned industrial goals--would also have collateral effects on transportation and agriculture in that it would slow up railroad and rural electrification. Continued restrictions on electric power would contribute to labor unrest and create considerable inconvenience, particularly in the larger urban centers. This could have a serious effect on morale, particularly when accompanied by continuous pressure to meet planned deadlines.

The USSR has extensive manufacturing facilities for heavy mechanical and electrical machinery capable of producing the largest sized turbines, generators, transformers, boilers, and boiler tubes. Although the Soviet Five-Year Plan envisages tremendous increases in the installed capacity of electric stations (doubling the prewar plant capacity by 1950), the progress to date has been brought close to the goals by Soviet manufacturing ability plus reparations, requisitions, and foreign purchases. The USSR is still buying from Western countries, but electrical purchases from the US have fallen from $44 million in 1946 to $5½ million in 1948, probably as a result of US restrictions. The great volume of new equipment required to meet the Plan for the Electric Industry probably precludes much "leeway" for foreign defaults or domestic deficiencies.

Albania is entirely dependent on imports for additions to its electrical facilities and could be of no assistance to other orbit countries. However, curtailment of imports of such equipment would have little effect on Albania's predominantly agricultural economy.

Bulgaria depends largely on imports for additions to its electric facilities. Present demand for electric power is far ahead of supply, particularly in the Sofia area. Planned hydro development, already behind schedule (30 percent of the goal), would be seriously affected by an embargo.

Czechoslovakia is probably the most nearly self-sufficient of the Satellites, not only in the supply of electric power but also in its ability, in the event of an embargo, to continue additions and replacements to its plant capacity. Czechoslovakia is now exporting such items as large steam turbo-generators, electrical measuring instruments, and switchboard equipment. In 1948, a 25,000 KW and a 45,000 KW steam turbo-generator were shipped to Denmark by the Skoda Works. In July 1948, exports of Czech electrical apparatus reached the highest point since prewar, and if the rate for the first seven months of 1948 could be maintained for the rest of the year, the 1948 exports should almost equal those for 1946 and 1947 combined. Czechoslovakia is, therefore, pre-eminent among the Satellites in the production of electrical equipment.

In Finland, demand for electricity outstrips supply, and the Finns are strenuously trying to add to their hydro plant resources. This program would be seriously affected by an embargo because Finland is now attempting to buy in all foreign markets, including US, to supplement its own manufacture. Electric power restrictions are now in effect, and the paper and pulp industries, backbone of the Finnish economy, are being retarded by the shortage. Lack of power will probably result in failure to meet requirements for heavy reparations to USSR ($300,000,000 in manufactured goods by 1953).

In Hungary, although there is considerable manufacture of heavy machinery in the Budapest area, it is not enough to meet the electric expansion planned for Hungary. Present imports of electrical machinery, principally from Czechoslovakia and the USSR, would dry up in the event of a total embargo.

Poland is in a relatively good position in electric power supply, but still does not have enough to meet the demand if the plan is to be met. Most Polish electric power is generated in thermal plants in which the boiler and steam equipment is reported to be old and in poor condition, requiring extensive replacements and additions, much of which must come from outside sources. Boiler tubes are a particularly critical item since they require alloy steel as well as special care in manufacture. The Polish Government now has on order a 60,000 KW steam turbine from Switzerland, as well as large boilers and high-tension switching equipment from western Germany. An embargo on electrical generating equipment would quickly be reflected in a shortage of power and a reduction in coal production, the latter the most important item in the Polish economy. Lack of sufficient coal would not only have a serious effect industrially on Poland and the neighboring orbit countries but would also reduce Poland's prime source of foreign exchange.

Rumania is almost entirely dependent on outside sources for heavy machinery and electrical equipment. It has only a small manufacturing capacity and can therefore be of little help to the orbit countries. The Rumanian economy will be less seriously affected by an embargo than most of the other Satellite economies since it is less dependent on electric power. However, failure to develop the power industry will seriously retard planned industrial development.

(2) Petroleum.

Insufficient refinery and oil-well equipment with which to meet the planned exploration of new fields and planned production of high-grade refined products, constitutes the major difficulty of the Soviet oil industry. This industry has never been self-sufficient in oil equipment and has had to rely heavily on foreign countries, especially the US. Another adverse factor is the Soviet limitation in operational efficiency and maintenance caused by a shortage of skilled workers and proper repair facilities.

Although the USSR is apparently fulfilling its crude-oil production goals, the shortage of high-grade refined products indicates that up-to-date refining equipment continues to be the outstanding deficiency in the Soviet petroleum industry. This deficiency, which retarded the prewar development of the petroleum industry, was aggravated during the war by destruction of plants producing refinery equipment and by conversion of oil-equipment plants to armament production. Recent US restrictions on the export of petroleum equipment and products to the USSR have also been effective in bringing about this shortage.

Soviet refining capacity now exceeds crude oil output by about forty percent, but, because of the restricted cracking plant capacity and limited plant flexibility, high-octane gasoline is in relatively short supply and will continue to be for several years at least. Catalytic cracking facilities are very limited. Domestic production of improved cracking units is still in the experimental stage, introduced only after the end of the war with the shipment of four Houdry units under lend-lease. The orders for two plants were cancelled at the end of the war, and the general lack of technical skill in the Soviet petroleum industry will obviate full utilization of the two completed units. This shortcoming is evidenced by Soviet overtures for technical assistance from the US companies that took part in installing the plants.

The lend-lease refineries represent only four percent of the total crude-intake plants in the USSR; yet because the Soviets had no catalytic cracking units prior to their receipt, they take on a special significance. Withholding shipments of this type of equipment from the US would not only have the effect of restricting Soviet production of light fractions, particularly high-octane gasoline, but would also accentuate the present shortage for several years. (Reported completion of the first Soviet-made catalytic units indicates that the USSR is attempting to produce equipment in imitation of the American Houdry units.)

Also in short supply are pipe, drilling equipment, fabricated steel, and other material required for Soviet crude-oil production. Increases in crude output achieved in 1948, however, suggest that there has been some improvement in the supply of this equipment.

Since the planned expansion of the petroleum industry depends on the availability of equipment, the USSR has placed heavy emphasis on the rapid development of the Soviet oil field equipment industry in order to lessen Soviet dependence on foreign sources of supply. By 1950, Soviet oil-field equipment production is planned to be 2.5 times the output in 1940, with a considerable increase in the variety of items manufactured. An indication of Soviet requirements may be found in the $10 million worth of equipment shipped to the USSR from the US; about half was drilling equipment, and the remainder cementing and prospecting equipment. A shortage in fabricated steel and measuring and control instruments will further hinder the expansion of oil equipment production.

The Soviets have improved their postwar supply of oil field equipment by dismantling oil field facilities in the Satellites. The difficulties now being encountered in the Rumanian oil industry are attributable to the removals of large and diversified types of oil equipment from Rumanian oil fields. In Austria it has been reported that the Soviets in 1945 removed eighty percent of the oil-well drilling and field maintenance equipment. It is also estimated that the Soviets dismantled in Germany synthetic fuel equipment totalling approximately 1 million tons in refined products capacity.

Recent Soviet trade arrangements with Czechoslovakia and Sweden indicate that the Soviets are concentrating particularly on obtaining pipe and tubings for their oil fields. Czechoslovakia is expected to deliver 50,000 tons of oil-well tubing by 1952. Sweden is scheduled to deliver 955 drills by the end of 1953, or an average of about 160 drills per annum for a six-year period. A recent report indicates that the Czechs have concluded another trade agreement to deliver more oil field equipment. This Czech-Soviet negotiation, however, may have merely clarified the amount that was to have been delivered under the previous arrangement.

While the Soviet Union is expected to continue importing badly needed oil field equipment, it will probably make a gesture of supplying oil field equipment to Poland. In view of the shortage of equipment in the Soviet Union, it is doubtful if these shipments will indicate that the Soviets can adequately assist the Satellites in overcoming the critical shortage of their petroleum equipment.

US shipments of approximately $64 million worth of petroleum equipment to the USSR during 1941-1944 was a decisive factor in keeping the Soviet petroleum industry in operation. US shipments from 1945-48 of some $44 million worth of equipment aided the Soviet oil industry to a point where the present production has reached the 1941 level. A continuation of such oil equipment shipments to the USSR would aid the Soviets in production and increase the rate of expansion.

A Western embargo on oil-field and refinery-equipment shipments would not drastically hamper present Soviet oil production. Rather, this action on the part of the West would be instrumental in limiting Soviet oil field exploration and exploitation, would delay expansion of refinery facilities principally for the production of high-octane gasoline, and would also delay any Soviet schemes of stockpiling strategic quantities of high-octane gasoline and lubricants.

Satellite production of crude oil is sufficient to meet present requirements; however, there are definite shortages of special refining equipment for the production of high-octane gasoline and certain other petroleum products. Aviation gasoline is so inadequate that it has been necessary to curtail sharply all civil aviation in Czechoslovakia and Yugoslavia. Motor gasoline is in short supply in Bulgaria, Czechoslovakia, Yugoslavia, and the Soviet Zone of Germany. There is a general shortage of lubricating oils throughout the entire Soviet bloc.

The success of the various "Plans" depends chiefly on the ability of the Satellites to obtain machinery and equipment. As a result of the premature exhaustion of reserves in Rumania, the future of its petroleum industry hinges on its ability to obtain drilling and refining equipment for the development of new fields. The same is true in Hungary and Czechoslovakia. Because sufficient machinery and equipment cannot be obtained within the Soviet countries, they have been forced to turn to the West. Rumania, especially, cannot hope to attain the goals set unless it obtains rigs, motors, tool joints, drill collars, bits, drill pipe, casing, and other specialized equipment. The "Most" synthetic gasoline plant in Czechoslovakia is operating at only a fraction of capacity as a result of its failure to obtain equipment promised from the French Zone of Germany. Efforts to obtain the necessary machinery and equipment made in the UK, the US, Sweden, Switzerland, Italy, France, Belgium, Brazil, Bizone of Germany, and the French Zone of Germany have met with little success. A number of trade agreements between East and West have included oil equipment. As far as can be ascertained, however, no significant amounts of oil equipment have been received in the Satellites from the West since early 1948. At that time the US sent a shipment to Constanta.

Since the Tito-Cominform break, Yugoslavia has been forced to turn to the West for crude petroleum and products. Its efforts have been successful to some extent. Purchases have reportedly been made in Trieste, Tangier, the Middle East, the UK, and Italy. The US is considering the shipment of lubricating oil and grease to Yugoslavia. An embargo on such shipments would be very serious for Yugoslavia, but would have little or no effect on the USSR.

(3) Iron and Steel and Ferro-Alloys.

The Soviet orbit could use considerably more iron and steel but will be able to manage with present output even though this production is not meeting the ambitious economic plans of the bloc. High quality iron ore is the principal deficiency of the Soviet bloc.

Both the Czechoslovakian and Polish iron and steel industries are dependent upon large imports of Swedish iron ore for mixture with orbit ores to improve the quality of the furnace feed. Installations and equipment in these countries are designed and constructed for processing mixed ores of this kind and cannot be easily adapted to handle alone the lower grade and lower quality ores available in the bloc.

Rolled and semi-finished steel products from Poland and Czechoslovakia are an important contribution to the Soviet war potential. Cessation of shipments of high-grade iron ore from Sweden to Czechoslovakia and Poland would paralyze the steel industries of these two countries and indirectly would seriously affect steel production throughout the Satellites. From two to three years would be needed before complete conversion of equipment could be made to utilize low-grade iron ore.

Satellite countries are basing their steel plant modernization and expansion plans on imports of installations and equipment from the West, principally from the US and the UK. Inability to procure this machinery and equipment is retarding significantly the achievement of objectives. Unsuccessful Soviet attempts to import such equipment from the West are also contributing to the Soviet failures to meet planned goals for steel production. Total embargo against the bloc would retard expansion even further. This action would force the USSR either to help the Satellites materially at its own expense or to accept a lesser contribution of the Satellite countries to the overall production of the Eastern bloc.

USSR

USSR steel production in 1948 is estimated at 17.4 million metric tons and will at most reach 20.0 million metric tons in 1949. This compares to 1940 steel production of 18.3 million metric tons. It is unlikely that the 1950 goal of 25.4 million metric tons of steel will be met.

Limiting factors in Soviet steel production are: inadequacy of conveniently located quality coke, difficulties in the production of metallurgical equipment, inadequate technical knowledge and ability, shortages of certain ferro-alloys, and inadequate transportation facilities to handle requirements and production of the iron and steel industry.

The total embargo on the shipment of metallurgical equipment from the West would impede the realization of the Soviet steel expansion goals.

Soviet Zone of Germany

Although the steel production of the Soviet Zone of Germany is relatively small, it is a contribution to the total steel production of the Soviet bloc. In addition, the Zone has sizeable quantities of scrap, much of which is shipped direct to the USSR.

Albania

Albania has no iron and steel industry. An insignificant quantity of chrome and manganese is mined.

Bulgaria

Bulgaria has no iron and steel industry, but it does have rich chromite deposits, some manganese ore and a small coking industry. Exports are for the Soviet bloc.

Czechoslovakia

The Czechoslovakian iron and steel industry, which produced an estimated 2,370,000 metric tons of raw steel in 1948, is of particular importance to the Soviet bloc because of its production of special steels and products plus the technical skills involved in processing. The coke industry is well developed and provides a surplus for export. Iron-ore mined in the country is of a low grade and must be supplemented by large high-grade ore imports from Sweden and a lower quality from the USSR. In 1948, an estimated 937,000 metric tons were produced in Czechoslovakia which was augmented by imports of 1,026,000 metric tons from Sweden, 400,000 metric tons from the USSR and 20,000 tons from France. Since Czechoslovakian blast furnaces are designed to blend high-grade Swedish ore with the lower grade, cessation of shipments of Swedish ore would paralyze the nation's heavy industry until changes were made in the furnaces to permit the use of only lower grade ore.

Czechoslovakia is negotiating to import 1,300,000 tons of Swedish ore in 1949, but Sweden has offered only about half of that amount. With the view of future independence from ore imports from the West, the Czechoslovak Government is planning the construction of blast furnaces in Slovakia to utilize native, low-grade iron ore. Thus Slovakian and Soviet iron ores would form the basis of the steel industry in Czechoslovakia.

Scrap is in short supply in Czechoslovakia, and attempts are being made to import scrap from Bizonia and the Soviet Zone of Germany.

In 1949, an estimated 800,000 tons of rolled steel will be shipped to the USSR. Embargo on the purchase of installations and equipment for the Czech steel industry and on the shipment of high-grade iron ore would have serious effect on the Czech steel industry. It would affect, indirectly, the Soviet heavy industry.

Finland

Finland, which processed an estimated 85,000 metric tons of steel in 1948, imports coke, iron ore, pig iron, crude steel, scrap, rolled steel and ferro-alloys in varying amounts from both Western and Soviet bloc countries. Restrictions by the West on such exports would significantly reduce production. Such restrictions, however, would have little effect on the USSR except that the Soviet bloc would have to supply Finland's deficiencies.

Hungary

Expansion and modernization of the Hungarian iron and steel industry, which produced an estimated 650,000 metric tons of raw steel in 1948, depends largely upon imports of machinery and equipment from the West. Such expansion could provide rolled steel for the USSR and other Soviet bloc countries.

Poland

Poland produced about 1,800,000 metric tons of raw steel last year, but its ample reserves of low-grade iron ore must be supplemented with large quantities of Swedish ore and lesser amounts from Norway and France. Scrap is in short supply but could be made up within the Soviet bloc. Discontinuance of high-grade iron ore exports from the West would necessitate major changes in furnaces to permit the exclusive use of lower grade ores.

Rumania

Rumania's iron and steel industry is relatively small. Production amounted to only 183,000 metric tons in 1947, and depends on imports for metallurgical coke, iron ore, some pig iron, crude steel and rolled products. However, Rumania ships large amounts of manganese to the Soviet bloc countries.

Rumania needs imported installations and equipment to rehabilitate and expand its iron and steel industry.

Yugoslavia

In 1948, about 80 percent of Yugoslavia's iron ore production of 613,000 metric tons was exported to the USSR. Raw steel production was estimated at 235,000 metric tons in 1948. The country is entirely dependent on outside sources for metallurgical coke, and to meet the 1949 coke target more than 500,000 metric tons will have to be imported. Yugoslavia has a large exportable surplus of antimony and also ships out some manganese, but it is dependent entirely on foreign sources for other ferro-alloys.

Expansion of the iron and steel industry requires machinery and equipment imports from the West. Immediate needs are a blooming mill and coke plants.

(4) Non-Ferrous Metals.

Tin.

It is estimated that Soviet tin production in 1949 will be under 9,000 tons while requirements will total at least 17,500 tons. In the Satellite States there is practically no production. Inability of the USSR to obtain tin under the allocations procedure of The Combined Tin Committee has consequently forced the Soviets to obtain it by smuggling from southeast Asia and China.

A total embargo would be felt almost immediately by the entire Soviet bloc. At present, apparent tin consumption in Czechoslovakia and Hungary is greater than the CTC allocation granted them. In 1948 the situation was as follows:

Country	Apparent Consumption (estimated) (Long Tons)	Allocation by Tin Com. (Long Tons)
Czechoslovakia	2100	1391
Finland	240	250
Hungary	720	162
Poland	1200	2125
Rumania	--	180
Yugoslavia	420	610

The balance is made up from small imports from ERP countries and the Soviet Zone of Austria and from the smuggling from southeast Asia and China. The present search for new sources of supply and the increase in purchases demonstrate the seriousness of the shortage within the orbit.

Copper.

While primary production and secondary recovery of copper in the USSR may equal 250,000 tons in 1949, requirements will run from 300,000 to 350,000 tons. The lower figure may be nearer the mark because aluminum has been substituted for copper in many instances.

Imports from the Soviet Zone of Germany, and reparations in copper from Finland ease the need from other sources. If it could also be procured from Yugoslavia, there would be practically no shortage. Thus far, copper has been obtained from Belgium, Norway, and Chile. Significant quantities have been obtained through the Satellites. Finland has been shipping copper to Russia, and, in turn, importing it from the West to meet its own industrial needs. Czechoslovakia exports copper to the USSR in the form of manufactured articles.

The supply of copper within the Satellite countries is sufficient to meet their requirements, if Yugoslavia makes her resources available for, with the exception of Poland and Hungary, the Satellites are

all partly self-sufficient in its production while Yugoslavia has a surplus for export.

A total embargo would cause the Soviet orbit to restrict the use of copper. If Yugoslavia were to withhold its supply from the Soviet bloc entirely, the shortage would be serious. In view of Yugoslavia's trade shift to the West, it is doubtful that the Soviet bloc will receive sufficient supplies from that source.

Lead.

As a result of low mine production and metallurgical difficulties, lead production in the USSR during the war fell off considerably. Mine production now is probably higher. The metallurgical problems have been largely overcome, but the USSR will still be unable to supply its needs. Poland and Germany will make up some of the deficit, and Bulgaria may also help, but unless imports are obtained from Yugoslavia, there will still be a deficit. As in the case of copper, lead sent to the Satellites will help the USSR directly and indirectly.

The Satellites are fairly well supplied with lead. Yugoslavia and Poland have large supplies, with a surplus for export. Rumania is self-sufficient and Czechoslovakia partly so. Bulgaria can supply a quantity of lead ores for export. Hungary depends mostly upon imports, some of which can be obtained from the Soviet Zone of Germany. These supplies, plus available secondary lead, should meet Satellite requirements.

An embargo on lead would cause an acute shortage in the Soviet orbit unless substantial quantities could be obtained from Yugoslavia. At the present time it is unlikely that Yugoslavia would be willing to make up this deficit.

(5) Chemicals.

Prior to World War II, all of the countries of Eastern Europe were dependent upon Germany for most of the chemicals essential to their economy, with the principal exception of a few basic heavy chemicals largely used for the manufacture of fertilizers or in their limited heavy industries. It was the plan of the I. G. Farben to gain complete control of essential intermediates, dyes, drugs, pharmaceuticals, and many essential solvents. A substantial part of the German chemical industry was located in what is now the Soviet Zone and in the present western provinces of Poland. Most of these plants were destroyed or seriously damaged during the war. The remaining usable equipment was claimed as reparations after the war by the USSR and the Satellites. In addition, a part of the equipment in the chemical plants of the US and British Zones was claimed for reparations.

The USSR realized the necessity for chemicals, both for the civilian economy and for industrial mobilization to sustain a war. It was also realized that the Satellite countries must have basic chemical production in order to supply the needs of agriculture and in order to utilize the chemical by-products from other industries, such as coke ovens, petroleum refineries, and gas plants. Hence, under the reparations agreement, removal of plants and equipment to the USSR and the Satellites was effected for these expansion purposes. In expanding its own chemical production, there is evidence that the Soviet Union plans restrictive production of certain products in the Satellites in order to increase their dependence and to control the production of chemicals, as did I.G. Farben before the war. Since much of the reparations equipment was unusable by the time it arrived at its destination, the Soviet Union, according to reports, is supplying new and heavy equipment from its own production.

The Soviet Union has had the assistance of German scientists and engineers in designing, rehabilitating, and operating its chemical plants. In view of this technical help it is safe to assume that the USSR has a large volume of production of basic chemicals and that the quality is improving. (Tonnage production of most products, however, is from 1/5 to 1/3 of that of comparable products in the US.)

Prior to the war, most Soviet chemical plants were of German design and used German equipment. Although some useful equipment and spare parts were obtained under reparation, in view of the destruction of German plants manufacturing chemical equipment, it is doubtful that the Soviets can obtain other parts or units and must, therefore, manufacture these required spare parts and new units themselves.

This will be a tremendous undertaking. Glass-line equipment, special valves, recording and control apparatus, many special alloys for special use, reactors, and vacuum and pressure pumps will be needed. All of this equipment requires specialized knowledge, technique, and skilled

labor to manufacture, and it is questionable whether the Soviets can perform all of these functions. None of this specialized equipment is produced in any of the Satellite nations, with the possible exception of limited production in Czechoslovakia. Therefore, without the importation of special equipment from the West, Soviet chemical production in many lines will become steadily less efficient until such time as the USSR has the industrial knowledge and the capacity for supplying the needs. A strict priority on requirements will have to be set up.

In spite of the expansion of the Chemical Industry, it is improbable that the Soviet Union makes all of even the most essential chemical products. There is little likelihood that the USSR will be able to make up any chemical deficiencies from the Satellites for many years to come.

Poland

Prior to the War, Poland produced limited tonnages of heavy chemicals, primarily for the fertilizer industry in the eastern provinces. Poland was, therefore, dependent upon Germany for most organic chemicals. With the transfer of this territory, those plants not destroyed were lost to the USSR, but in return, Poland obtained a large and complex chemical potential in the plants located in the former East German territory. Although reportedly 80 percent destroyed, many of these plants have been rebuilt and rehabilitated with reparation equipment. In consequence, sufficient heavy chemicals such as sulphuric acid, alkali, and alcohol are now produced to meet the agricultural and heavy-industrial economy. In addition, plants for recovery of basic coal-tar products from coke ovens have been started. Benzol and toluol in excess of national requirements are being produced, and some Benzol is being offered for export, even to the West. The British trade agreements recently signed will supply a tonnage of unspecified chemicals essential to the new Polish industrialized economy. Because the Poles received insufficient amounts of equipment from reparations, the USSR is supplying Poland with some necessary heavy equipment. It is believed that, for some time to come, the USSR not only will receive little benefit from the Polish Chemical Industry other than some coal-tar intermediates, but will probably be forced to send equipment and certain finished products into Poland in order to keep up Polish economy.

Czechoslovakia.

The Czechoslovakian industries were dependent upon the German Chemical Industry for their essential fine chemical requirements. A limited tonnage of heavy chemicals necessary to the fertilizer and soap industries was produced, however. Since the war, there has been in Czechoslovakia a definite realization that a Chemical Industry is essential to industrial recovery, and efforts are now being made to install capacity sufficient to satisfy these needs within the next two years. Organic intermediates will be obtained from Poland over and above this production. The Czechoslovakians plan to produce a substantial share of dyestuff requirements. Pharmaceutical

production is being expanded, and at present the large-volume products representing about 10 percent of the number of the essential pharmaceutical products are being produced. The balance must be obtained from the West. The country can help the USSR in only a limited manner for many years. From the mobilization standpoint, production of essential military chemicals is negligible.

Rumania

Production of chemicals in Rumania is extremely small. The total annual production of sulphuric acid necessary for fertilizer production and used in almost all industries is less than one-half day's production in the US; in fact, practically all chemicals must be imported. Companies jointly owned with the USSR have been combined to produce fertilizers and a few basic chemicals, but the USSR is controlling production and supply of all other products. Additional carbon black production is being installed to satisfy Soviet-bloc needs.

Bulgaria

Bulgaria is not an industrialized country, and like the rest of the Balkan nations, was formerly dependent upon Germany for chemicals. Sulphuric acid and atmospheric nitrogen plants are being installed to produce fertilizer chemicals.

In summary, although a complete embargo of List 1A and 1B will impede the development of Soviet bloc industry and agriculture, it will also emphasize the necessity of accelerating the installation of capacity to produce the essential chemicals. For instance, to make up the serious shortage of carbon black, the USSR, having the necessary raw materials, can, given time, produce sufficient quantities to meet internal requirements. In the case of the chemicals essential for propellents and military explosives in list 1A, the USSR, having dye-plants and nitrating knowledge, can make these materials if forced to do so.

(7) Transportation.

Railroads are by far the most important transport facility in the Soviet bloc and account for the movement of about 90 percent of all inland freight traffic. All transportation facilities in the USSR and Satellites were severely damaged and disrupted during the war but are now moving freight traffic at about the prewar rate.

In 1948 the Soviet and Satellite railroads carried a total of approximately 481 billion ton kilometers of freight, amounting to 98 percent of the annual ton kilometers carried just prior to the outbreak of the war. The USSR alone carried 417 billion of the above total and virtually equalled the prewar level. A significant factor in postwar traffic development has been the greater average length of haul as compared with prewar which requires more transportation per ton of freight originated. Therefore, while total transportation produced measured in ton kilometers is now near prewar levels in the entire area, the total tons originated is lagging behind somewhat. (See Appendix I)

Plans exist in nearly every country, including the USSR, for ambitious increases in freight traffic accompanied by increases in the inventory of motive power and rolling stock, extension and double tracking of rail lines, and in some cases railroad electrification. The Soviet Union is planning for a total of 532 billion ton kilometers of freight traffic in 1950, an increase of 27 percent as compared with 1948. The Satellites plan increases during the immediate future ranging from 12 percent in Hungary to 250 percent in Yugoslavia. To achieve these increases in traffic plans also exist for increased production of locomotives and cars, and for an increased supply of rails.

The current stock of locomotives compares favorable with that held before the war. In certain countries it is actually larger and is composed of units with higher tractive effort. Freight cars, while somewhat below the prewar total in the Satellites, are more plentiful in the USSR today than they were in 1939. The average capacity of freight cars has increased during the postwar period through the building of larger cars.

The USSR is receiving material assistance in building up its supply of transportation equipment from the Satellite producers of this equipment: Czechoslovakia, Finland, Hungary, Poland, Rumania, and the Soviet Zone of Germany. The Soviet Union has shipped small amounts of transport equipment to Albania and Bulgaria only. These are intended chiefly for military purposes. In addition, some German transportation equipment has been made available to the Satellites. There is a small exchange of transport equipment (largely components) between the Satellites that produce this equipment, and these countries have also made certain items available to Bulgaria and Yugoslavia after fulfilling Soviet and domestic requirements.

Curtailment of US and Western European exports of railroad equipment will neither prevent achievement of railroad freight transport plans in the USSR nor in any of the Satellites except Yugoslavia. Attainment of these plans, although of the greatest importance to economic and military strength, will not mean that transportation will no longer be a weakness.

While there is sufficient production of steam locomotives and freight cars within the orbit to fulfill inventory plans for these items, production of steel rails is insufficient for replacements, and assistance from the West will be necessary for completion of ambitious plans for railroad construction and double tracking. Moreover, deficiencies in the production of materials for railroad electrification will prevent the orbit from achieving its plans in this field.

Plans for railroad construction, double tracking and electrification are important for increasing the traffic capacity of the railroad systems, but failure to complete these plans will not materially affect the economic and military strength of the orbit.

Postwar emphasis in the USSR and Satellites has been on the development of railroad freight traffic. Passenger traffic is at a level comparable to prewar but passenger service and accommodations have deteriorated as compared with prewar standards. If no assistance is obtained from the West, freight traffic will probably be maintained at the expense of passenger service and the quality and possibly quantity of the latter may be affected. It must be remembered, however, that passenger traffic can be curtailed with little effect on the economic and military potential.

Inland waterways, highway transport, and civil aviation currently carry a small part of inland traffic. The potentialities of these facilities are limited, and even if developed to the fullest, can increase total freight movements very little.

Inland waterways will continue to carry their share of the traffic burden without assistance from the West, but current plans for highway transport probably cannot be achieved without imports. Aircraft production is sufficient to meet plans for civil aviation.

The merchant marine, which is larger today than in the prewar period, is concentrated in the fleets of the USSR, Finland, Yugoslavia, and Poland. The Soviet and Polish fleets have been increased through lend-lease and reparations. This has offset the Finnish and Yugoslav losses.

Demands on the merchant fleet are being met, and unless purchases and charterings of Western shipping are halted, plans for tonnages can be achieved. Without Western aid, plans for shipbuilding will not be achieved, because of shortages of skilled labor, finished steel, components, and technical assistance. (See Appendix II.)

The Soviet orbit, with the exception of Yugoslavia, will attain its railroad freight transportation plans despite a Western embargo on railroad equipment. Such an embargo would, however, prevent realization of plans for railroad construction, double-tracking, railroad electrification, highway transport and shipbuilding. Moreover, further deterioration of railroad passenger service and accommodations may be expected if exports are stopped, since achievement of the railroad freight traffic plans can be accomplished only at the expense of passenger service.

While the railroad freight traffic plans are most important for economic and military strength, achievement of the planned goals does not mean that transportation generally will no longer be a weakness.

APPENDIX I

TRAFFIC
(By Thousand Metric Tons)

COUNTRY	1938	1948
Bulgaria	6,000	8,450
Czechoslovakia	73,000	75,156
Finland	15,700	1,600
Germany	180,000 ϕ	78,000
Hungary	20,074	17,984
Poland	75,000	113,000
Rumania	27,632	20,000
Yugoslavia	19,032	39,480
Total	416,438	353,670
USSR	574,172	584,000
GRAND TOTAL	990,610	937,670

(By Million Ton-Kilometers)

Bulgaria	1,007	1,955
Czechoslovakia	18,450	13,690
Finland	2,711	2,515
Germany	23,349 ϕ	10,200
Hungary	2,534	2,898
Poland	23,368	25,000
Rumania	6,019	3,907
Yugoslavia	4,242	3,900
Total	81,680	64,065
USSR	408,810	417,000
GRAND TOTAL	490,490	481,065

ϕ Including area east of Oder-Neisse line.

EQUIPMENT

Locomotives

COUNTRY	INVENTORY		PRODUCTION
	1938	1948	1948
Bulgaria	540	1,000	1
Czechoslovakia	4,115	5,410	300
Finland	751	791	30
Germany	7,415	6,000	180
Hungary	1,876	1,570	176
Poland	5,166	5,860	250
Rumania	3,615	2,645	70
Yugoslavia	2,399	2,100	---
Total	25,618	25,376	1,007
USSR	24,400	27,000	1,200
GRAND TOTAL	50,218	52,376	2,207

Freight Cars

Bulgaria	10,646	15,000	0
Czechoslovakia	97,000	86,600	16,650
Finland	24,588	19,600	1,200
Germany	100,000	70,000	1,300
Hungary	40,035	35,000	7,000
Poland	155,932	145,000	16,000
Rumania	56,294	74,200	3,250
Yugoslavia	52,320	56,506	2,000 *
Total	536,815	501,906	47,400
USSR	784,400	870,000	80,000
GRAND TOTAL -	1,321,215	1,371,906	127,400

* Possibly suspended.

APPENDIX II

SOVIET AND SATELLITE MERCHANT FLEETS
(1000 Gross Tons and Over)

COUNTRY	1939 NO.	1939 GT	1949 NO.	1949 GT
Soviet Union	354	1,136,000	560	1,964,594 **
Finland	232	531,000	168	416,754
Yugoslavia	98	376,000	38	164,382
Poland	31	114,000	42	159,967
Rumania	25	103,000	2	12,367
Bulgaria	8	23,000	1	4,191
Hungary	6	23,000	1	1,002
Albania	-	--	1	1,756
Czechoslovakia	-	--	-	--
TOTAL *	754	2,286,000	813	2,725,013

* Postwar totals are tentative. Bulgaria, according to other estimates, has 20,000 GT, Poland 164,000, and Finland 392,000.

** Including Lend-Lease Vessels totalling 535,000 GT.

(8) Machinery and Industrial Installations.

Machinery production and industrial installations cannot be evaluated, even in part, in terms of quantity; these additional factors must be considered: technological standards, size of unit or installation, quality of component parts, processing for quantity (a matter of engineering skill), and replacement of manpower (ration of manpower to machine power).

The application of these factors to any field of industry demonstrates that the advantage lies overwhelmingly with the West. To some degree, the industrial development of Czechoslovakia and Hungary, the strongest units in the Soviet industrial complex, furnishes a few items of acceptable quality but insufficient quantity. The USSR produces certain other items in some quantity, but totally lacking in quality. The field of machinery and industrial installations includes: machine tools, mining, oil and construction equipment, agricultural machinery (tractors), precision instruments (mechanical and otherwise), optical and electrotechnical equipment, power lifing equipment (cranes, etc.) ferrous and non-ferrous metals processing equipment (from classifiers to blooming mills), primary power equipment (Diesels, turbines, etc.), abrasives, and all other capital equipment and its related industries making component parts.

Machine Tools - The present Soviet inventory should be adequate in quantity in a limited number of items. With the exception of approximately 100,000 machine tools, furnished by the US under lend-lease, Soviet additions to inventory since 1940, in the order of 700,000 units, represent the dismantling of equipment in the border countries or in controlled areas, resulting in deficits of required production equipment in the Soviet Zone of Germany, Poland, Hungary, Austria, and Rumania. Much of the value of this additional equipment to the USSR must be discounted because of damage in transit, loss and lack of required spare parts and auxiliary tooling supplies such as cutters and abrasive products, breakage in dismantling and installation, shortage of facilities for full utilization of equipment, and the lack of engineering and skilled labor. To some extent the addition of looted and lend-lease equipment represents a potential reserve of constantly depreciating equipment.

Soviet machine tool production is involved in a technological struggle. At the end of the war, existing installations were obsolete, over-simplified in range and type, and handicapped by poor workmanship and poor quality of materials. The industry has sought partially but unsuccessfully to rectify these mistakes in the postwar period, with the result that production has fallen below even the goals of the third (prewar) Five Year Plan. Consequently, the USSR is still basically a machine tool importer. Requirements have been temporarily met from dismantled and looted supplies which have not been fully absorbed by the economy.

Range of types, size, and quality are far more significant than the factor of quantity production in estimates of machine tool values. Only Czechoslovakia, of all the Soviet orbit States, meets Western European technical standards in a few limited (light and medium) sizes of machine tools, such as light turret lathes, one or two models of multiple drills, horizontal planers, and milling machines. Though quality is adequate, production techniques are antiquated; hence there are limitations to quantity production. Current production, mostly of medium to small-size machines, is about 10,000 units yearly. This is roughly equal to the Swiss output and less than that of Italy. In view of the Moscow-directed conversion of the Czechoslovakian machinery industry production to heavier types and special items to meet Soviet deficiencies, it is questionable whether even this present standard can be maintained. If this conversion is to be successful, it requires a major change in organization and additional equipment for which the Czechs are dependent upon Western Europe and the US.

Precision Instruments - Soviet production of precision instruments is limited to basic mechanical and measuring instruments such as micrometers, calipers, and a few simple gauges, and rulers. These are of poor quality. The USSR has not yet started the manufacture of Johannsen blocks (a world-wide standard precision measuring device). Various scales and gauges, copies of US and Western European products, have been "invented" by Russian scientists, but production has been nil.

However, German technical and production resources in the Soviet Zone for the manufacture of a wide range of standard precision instruments should be assumed to be at Soviet disposal if facilities are provided in the USSR. A start toward the production of precision optical instruments has apparently been made with the partial removal of Zeiss facilities to the USSR, thereby providing technique, facilities and personnel for a previously non-existent industry.

Hungary produces some technical precision equipment, primary medical instruments, but not in great quantity nor in a wide range. Czechoslovakia has made some instruments for use within that country, but only on a "custom basis." It remains an importer of precision instruments.

While the Satellite countries have made ambitious plans for developing heavy industry, even partial realization is dependent on technical assistance and fabricated equipment from Western Europe and the US. Thus while there exists within the bloc the ability to create pieces of industrial equipment which will satisfy the five governing factors, the capacity is so limited that only one product at a time can be made from the thousands of types, sizes and characters of industrial machines required.

(9) Antifriction Bearings.

With the exception of the Soviet Union and the Soviet Zone of Germany, there are no sources of antifriction (ball, roller, and needle) bearings within the Soviet orbit. Expanded industrialization, within the Soviet Union or the Satellites, will be unsuccessful if the Soviet orbit is to depend on its own resources for this commodity. Even the Soviet orbit's utilization of existing industrial equipment is complicated by the fact that standard bearings (presupposing standard quality on the best world level) are among the few vulnerable and non-durable parts in all types of machinery. Therefore, a very large part of bearing production goes not into new equipment, but into replacements and repairs.

Since the USSR may be considered the sole source of bearings within the orbit (total Soviet Zone, Germany, production goes to the Soviet), the industrial effort within the orbit must depend on the adequacy of the Soviet antifriction-bearing supplies, unless such bearings are imported from some other country.

Present estimates of Soviet production vary from 30 million units per year to 60 million. The bulk of evidence indicates that the former figure is the more reliable. (The latter estimate seems to include repaired bearings for which approximately 50 percent of the Soviet bearing manufacturing equipment is used.) Parts used in repaired bearings must come from prime production. Soviet papers have even requested citizens to turn in steel balls. This production rate compares with a Western European capacity of over 200,000,000 units a year and a US capacity production rate of 400,000,000 a year, or a total Western World production rate of from 400 to 600 million units a year.

The absence of self-sufficiency in orbit bearing production becomes much more striking when one considers the factors of quality and variety of types. The largest Soviet factory produces only 200 types of bearings (other Soviet factories probably account for another 100 types). In contrast, 30,000 types exist in Western production, of which 5,000 are basic-standard bearings. In addition to the limited range, the quality of Soviet-produced bearings is adjudged to be the poorest of any of those made in the principal production centers of the world.

The two essential features of producing bearings of adequate quality are material (which involves highly technical engineering, use of electric furnace alloy steel of high carbon, chromium, and nickel-molybdenum content); and precision machinery which requires the finest type of machine tools, cutting tools, grinding abrasives, and skill.

In the production processes alone, the Soviets employ techniques which have been obsolete for 25 years. The poor quality of Soviet bearings shows itself in the uneconomic and unfeasible attempts to repair bearings, the constant complaint of users within the USSR, and the rejections of Soviet bearings by Satellite technicians as unusable even in the small quantities that have been supplied.

In recognition of the Soviet industry's own inadequacies with respect to quality, Soviet factories formerly furnished all tractor and farm equipment with a complete duplicate set of bearings for repair and maintenance. During 1948, however, Soviet users of such equipment have complained that this practice has ceased. Since production-users (transportation, mining, farm equipment, and machine tools) have more frequently blamed breakdowns and work stoppage on bearing failures than on any other component part, it would seem that the failure to supply duplicate sets may worsen an already bad situation. Likewise, since the quality of Soviet bearings is so poor, it is likely that more than 50 percent of the Soviet's annual production is required for normal repair and replacement of existing bearings. (US-produced standard bearings are generally rated at 3,800-5,000 hours life at maximum capacity. Some bearings used in precision instruments, however, have to be replaced every two months).

The problem for the Soviet Union becomes immeasurably greater as time passes, both because of the constant increase of new equipment inventory, and the replacement required in looted and imported foreign-made equipment. There is some evidence that the Soviets have even purchased new equipment from outside the orbit in order to procure certain special bearings, with the intent of either discarding the equipment or trying to replace the Western bearings from Soviet production.

Beyond the fact that Soviet production cannot replace standard bearings in equipment manufactured outside the orbit, the Soviet position in regard to foreign-made equipment becomes even more vulnerable in the field of machine tools, which require many special bearings. From a factory study it seems apparent that most of the Soviet machine tools are of foreign manufacture. The US alone, under Lend-Lease, supplied 100,000 units to the USSR. Of the 700,000 machine tools available in the Soviet Zone of Germany, it is believed that the Soviets have acquired the greater part. Although this increment (quite apart from the extensive import of machine tools before the war), may not be in total use, and though some cannibilization would be economically permissible, neither factor provides a stabilizing solution, nor will it deter more than temporarily the increase of the Soviet inadequacy in bearing-production.

Meanwhile, in the Satellite states, the problem has already become acute. Under the best of circumstances the supply of bearings has existed on a hand-to-mouth basis, depending almost entirely on imports from Western States, particularly Sweden. The existence of German stocks of bearings (mainly war supplies accumulated by the Germans), were of temporary help. European imports from the US remained abnormally high until March 1948 restrictions. Swedish production sources were taxed to the limit and even now consist of heavy backlogs. After the March 1948 restrictions on US exports were imposed, the shortage of bearings in the Satellite countries became notably more severe.

Czechoslovakia, the most industrialized of the Satellite nations, has been the chief sufferer. Smuggling activities and haggling over a handful of bearings have become standard practice. In one instance, a plane was sent directly to Sweden to bring back to Czechoslovakia less than a dozen bearings. Permanent machine breakdowns have been noted which resulted from the lack of bearings. Temporary work stoppages in factories have been necessary. Although Czechoslovakia actually produces a negligible quantity of bearings, the process has never been successful, either in quantity or quality. The Czechoslovakian Government has constantly made and revised plans for the erection of a new bearing plant but at present is making no headway because of dependence on unobtainable US machine tools.

Poland has held off an acute shortage by settling its account with Swedish SKF, and importing bearings through Third-Party countries. Because of progressive failure of both of these sources, however, the Polish situation is becoming more acute. It is to be noted that both Poland and Czechoslovakia, in spite of indigenous need, have been buying bearings for direct export to the USSR. No such actual instances have been reported for the other Satellites but quantities sought, would indicate a similar condition. Poland is also reported planning the erection of a ball-bearing plant. Hungary produces a negligible amount of bearings and has made most strenuous efforts to procure them throughout the world.

There is no evidence of a pooling and priority arrangement for the distribution of this commodity within the Soviet orbit. In all cases, the priority of demand has been established by the Soviets, and re-distribution has been solely within the Soviets' power. Thus, for instance, Rumania has officially boasted of receiving a shipment of some 3,000 bearings from the Soviet Union. (If this shipment is similar to others made by the Soviets to the Satellites, in all probability the bearing manufacturer was other than the Soviet Union). In turn, it has become quite apparent that Czechoslovakia and Hungary have also taken

their bearing-shortage problem to the USSR. Mutual assistance in the purchase of bearings outside of the Soviet orbit seems possible and probable. It was reported, in September 1948, that Bulgaria was seeking $200,000 worth of bearings from the US through Italy. When this effort apparently failed, the same figure was used in seeking a trade agreement with Italy. Hungary, in September 1948, asked for $200,000 worth of bearings from Switzerland, when a trade agreement was being sought. It was reported, in November 1948, that officials of the Soviet Zone of Germany had been ordered to set aside $200,000 for the purchase of bearings. In addition, all Satellites have sought fantastic quantities of bearings well above their normal prewar requirements which according to State Department reporters included more than a single customer country's potential needs.

It has already been noted that, as war stocks diminished and abnormal imports from the US were shut off, the shortage of bearings became more acute, and that direct smuggling and exploiting of illicit purchases through Third-Party interests resulted. Such purchases have been made both for US bearings and for other makes. The trade seems to have included such widely separated points as Argentina, Tangier, and Iceland. In any case, the quantities so handled have been insufficient to permit more than a very temporary solution. All reports indicate that the small quantities of bearings have been allocated for use in equipment of the greatest priority. Although bearings are but one of many factors, industrial reports from all of the Satellite countries have emphasized the lack of bearings in explaining factory failures to meet production plans and other work stoppage.

The Soviet Union has apparently made no recent direct effort to procure bearings. The bulk of evidence, however, would indicate that Satellite endeavors have included the USSR as the potential user. In certain specific instances, reports have shown the USSR to be the direct benefactor of Satellite imports, notably Polish. In Czechoslovakia, since much of the equipment using ball-bearings was to be manufactured for the Soviet account, it is obvious that the USSR benefits indirectly. Soviet efforts to procure Austrian bearings, both in equipment and as units, have been notable. USIA, the official Soviet purchasing agent in Austria, has paid premiums for smuggled Austrian and German bearings, as well as making exchanges of certain equipment dependent upon procurement of bearings for its own account. In Rumania, the 3,000 or more bearings reported to have been shipped by the Soviets were presumably to be used by the State railways, which presumably would benefit the Soviet-managed oil industry. (No confirmation however, of the Soviets actually shipping bearings to Rumania has been received.)

Western European countries have now reached the stage of rehabilitation in industry which would seem to permit an export of bearings to the Soviet orbit sufficient to fill all practical needs for a year. Of Western European exports of bearings, the Swedish supply is the most important, both in terms of quantity and quality. No information exists which accurately shows Swedish exports of bearings to the Soviet orbit countries. However, if this prime source would adhere to an embargo along with Italy, France, Switzerland, Germany, and the United Kingdom, it is quite possible that Eastern European countries' plans for further industrialization not only could be cut short but that such an embargo possibly would seriously disrupt existing industrial processes. If maximum efforts were made by Satellite and Soviet countries, two solutions might be possible in a period from three to five years hence.

The first expectation would be that new plants would be created. At present, however, all such plans (including those of Poland and Czechoslovakia and the USSR) hinge on Western assistance both for technique and equipment, while even such plants as would be built in the aforesaid period would be insufficient to balance quantity imports alone, much less quality.

The second solution is a re-designing and re-building of equipment substituting plain bearings for all rolling antifriction surfaces, and consequent replacement of all existing machinery utilizing roller bearings. Such an undertaking would be tremendously difficult and would not lessen any of the immediate shortages. In addition, even if successful, such a step would put Eastern European industrial processes in an extremely inferior technological and productive position as compared with the West. Such a step would be, in effect, replacing a power lathe with a cold chisel.

WESTERN EUROPE	CAPACITY PRODUCTION IN UNITS	TYPES	QUALITY
Sweden	25,000,000	Several thousand Standard & Special	Superior. Aircraft and Standard
UK	55,000,000	ditto	ditto
Germany	prewar - 92,000,000 present - unknown	Military limitations only	Military limitations only
Austria	2,400,000	Standard primarily Some special aircraft	Equal prewar German standards
France	25,000,000	Several thousand Mostly standard	World average
Switzerland	4,400,000	Primarily special bearings	Superior
Italy	22,000,000	Mostly standard bearings	Majority cheap quality, generally fair
Total	133,800,000 excluding Germany (92,000,000)		
USA	400,000,000	All types	Superior Aircraft and standard
TOTAL	533,000,000		
USSR	30 - 60,000,000	Approx. 300	Very poor. No aircraft or instrument
Sov. Zone Germany	1 - 3,500,000 (2 of 3 plants) (dismantled)	Dependent on 90% of balls and rollers from Bi-Zone. Present production entirely devoted to repair of bearings.	
Czechoslovakia	Negligible	Few small sizes - dependent on Western Germany for component parts	
Hungary	Negligible		
Poland	---		
Rumania	---		
Bulgaria	---		
Yugoslavia	---		
Finland	---		

(10) Industrial Diamonds.

Since the production of industrial diamonds is almost nil in the USSR and in the Satellites, practically all requirements, totaling between 50,000 and 100,000 carats per year, must be obtained outside the Soviet sphere. Current difficulties in the purchase of these items abroad have forced the USSR to procure a part of its requirements through smuggling. In addition, the USSR has probably acquired some from the Satellites which, however, are themselves dependent on outside sources of supply.

A total embargo would not be felt at once, since stocks have been built up in the past, but within a year or so the failure to procure this item would significantly impede industrial production.