Minerals in the World Economy

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In 1970, the mineral industry, cornerstone of world industrial and economic activity, continued to register gains in production, trade, and consumption of most major commodities on a worldwide basis in its effort to satisfy ever-growing requirements of the earth's expanding population. Overall world total industrial output, as measured by the United Nations' index of world industrial production, advanced by 4.7 percent in 1970 over the 1969 level,[2] a growth rate that was measurably exceeded by the growth in output of a number of major mineral commodities. Most notably among major crude mineral products, crude oil, marketed natural gas, chromite, bauxite, potash, iron ore, manganese ore, mine copper, and mine lead registered production gains in excess of the indicated growth in world industrial output. Among major primary manufactures, aluminum and cement production significantly exceeded world industrial output in terms of the rate of growth. These commodities and a number of lesser mineral commodities registered gains exceeding the world industrial output growth rate, but there were several major commodities that failed to attain this growth rate. The most significant of these was crude steel output; other major commodities with slower growth rates were phosphate rock, elemental sulfur, and mine zinc (the latter actually registered a decline in production).

Although comprehensive data on world trade in major mineral commodities during 1970 was not available at this writing, available information assures that the levels of trade reached in 1969 were exceeded in 1970. Preliminary figures on trade in crude oil, the overwhelmingly dominant single commodity traded, indicate that shipments advanced by over 14 percent to about 1,033 million tons in 1970.[3] Trade in refined petroleum products increased by 5.4 percent between 1969 and 1970, reaching 230 million metric tons.

In keeping with the recorded and inferred growth in production and trade of mineral commodities, all available information points to significant increases in consumption of most mineral commodities in 1970. Although average annual prices at a number of major mineral commodities for 1970 were higher than the 1969 average annual level, there were major exceptions (most notably steel prices) and a review of monthly figures for several commodities showed a downturn during the latter part of the year.

The two major areas of international hostilities—Southeast Asia and the Near East—continued to influence mineral commodity supply patterns in 1970. In Southeast Asia, despite reductions in U.S. troop commitments, consumption of fuels for military operations continued at a relatively high level, one far in excess of the modest civilian requirements for that region. In the Near East, despite the absence of major military efforts, the continued closure of the Suez Canal as a route for mineral commodity (chiefly oil) shipments to Europe remained a factor in the European oil price, and further pipeline closures within the area also had a measurable impact on supply patterns.

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[2] The United Nations' index of world industrial production for 1970, as reported in the United Nations Monthly Bulletin of Statistics for August 1971, stood at 157 (base 1963=100), 7 index points higher, or 4.7 percent above the 1969 level recorded in the same source.

[3] British Petroleum Co. Ltd. Statistical Review of the World Oil Industry 1970. London, 1971, 24 pp.

Space limitations preclude a detailed review of the world's 1970 mineral reserve supply situation on a commodity-by-commodity basis. In general terms, it should be noted that on a worldwide basis, no critical shortage in the reserve of any important mineral commodity is foreseen in the immediate future, but in the longer range view, to the end of the present century, for example, there are a number of commodities for which the adequacy of reserves is questionable in view of demand forecasts. The worldwide adequacy of reserves for the immediate future, of course, does not preclude shortages of some commodities, within some areas or even on a worldwide basis, resulting from temporary supply-demand imbalances.

PRODUCTION

The value of world crude mineral production in 1970 was estimated at roughly $97,600 million, an increase of about $5.5 million over the 1969 revised estimated level of $92,100 million.[4] As in the past, comprehensive, statistically consistent data on the value added by processing of these materials in mineral industry plants in the various nations are not available, but for 1970, an estimate of $220,000 million is regarded as conservative.

PRODUCTION INDEX PATTERNS

United Nations production indexes for various sectors of the world's mineral industry (excluding that of Communist Asia) and for major groups of countries are presented in table 1. This series, using 1963 performance as the base point, indicates that all phases of the mineral industry registered gains in 1970 compared with their 1969 performance, and that all crude extractive sectors except coal exceeded the growth rate for all industrial production. Among the mineral-processing sectors, base metal processing registered a smaller increase than did total industrial production, so that the level of the 1970 index for base metal processing remained below that for overall industrial production. The nonmetallic mineral processing sector index registered gains in excess of those recorded for overall industrial production; the coal, petroleum, and chemical industry production index, which increased markedly in 1969 and for that year stood considerably above the general industrial production index, again in 1970 registered a significant gain, placing this industry sector once again in the forefront of the various sectors of industry that comprise the world's total industrial operations.

Examining the extractive mineral industry by its major component sector—metal, coal, and petroleum (including natural gas)—the pattern of growth of each varied considerably, contributing to a general rise in the index for the overall extractive industry in the first half of 1970, a slight decline in the third quarter, and a significant rise to new highs in the fourth quarter. Metal mining began 1970 with an index 3 points below that of the total extractive industry and 1 point above that registered for the fourth quarter of 1969, advanced more sharply than the total extractive industry in the second quarter into the third quarter, and registered a decline in the fourth quarter. The index for coal mining in the first quarter stood on a par with the fourth quarter 1969 level, then declined through the second and third quarters and again increased in the fourth quarter, following the traditional pattern of poor results during the Northern Hemisphere summer months. Petroleum and natural gas extraction showed a gain over fourth-quarter 1969 results in the first quarter of 1970, maintained that level in the second and third quarters, and advanced sharply in the fourth quarter; the bulk of the overall increase was attributable on a regional basis to consistent increases in performance of the industry in Africa and the Near East. The nations of Communist Europe, after a very modest increase in crude mineral production between 1968 and 1969, recorded a substantial increase in the first quarter of 1970, a slight additional increase in the second quarter, a decline in the third quarter, and a recovery to the first quarter level in the fourth quarter, with the result that the annual average index was 9 points higher than that for 1969. In terms of the annual average index, the non-Communist

[4] For details on basis for estimation, see subsequent portion of this section titled Value of World Mineral Production.

world registered a 9-point gain in 1970 to a level of 140 percent of that of 1963; chiefly as a result of gains in the less developed countries of Latin America, Africa, and Asia and in Australia.

Considering the mineral processing industry sectors in terms of their performance during 1970, world base metals enterprises showed a modest growth comparing the first quarter of the year with the last quarter of 1969, edged upward slightly in the second quarter, declined in the third quarter to a level below that of any quarter since the second quarter of 1969, and edged only slightly upward again in the fourth quarter; thus the overall gain of 4 points in the annual average index number for 1970 compared with that of 1969 was wholly due to the increases of the first half of the year, which were more than enough to compensate for the poor returns in the second half. Nonmetallic mineral processing operations had a relatively poor first quarter, falling 5 points below their fourth-quarter 1969 level of 154 percent of 1963 activity, but recovered sharply (14 points) in the second quarter, registered a 1-point decline in the third quarter, and maintained that level in the fourth quarter. In the case of the petroleum and coal processing and chemical industry, growth was fairly steady through the year, except for a slight decline in the third quarter.

On a regional basis, the Communist countries of Europe showed greater growth in processing industry operations than they did in the extractive industries, and for another year showed greater gains relative to their 1963 performance than did the world's non-Communist countries. However, it should be stressed that these gains are solely relative to performance of the industries of these two areas in 1963, and the reader should consider the relative performance of these two areas in terms of quantitative output, for the gains of the Communist nations are from a lower base level in terms of quantitative output of most commodities.

QUANTITATIVE COMMODITY OUTPUT

Table 2 summarizes total world output of a number of mineral commodities for 1968–70; table 3 gives the regional distribution of 1970 output of these commodities in terms of percent of world total. Tables within the statistical summary section of this chapter provide details on distribution of output of selected major commodities by major producers for 1968–70.

Nonfuel Mineral Commodities.—Of the 39 metallic mineral commodities listed in table 2, 31 registered increases in production in 1970 compared with 1969 results, one was essentially unchanged, and declines were recorded for the remaining seven. Although the 1970 data are in general preliminary and subject to revision, examination of detailed data for the producing countries indicates that in all likelihood, these declines are actual and will not be eradicated by inclusion of additional, as yet unreported, tonnages. In terms of percentage change, the leading metal commodities among those registering gains were nickle (up 28.8 percent), columbium-tantalum concentrates (up 27 percent), refined cobalt (up 23.5 percent), platinum-group metals (up 22.9 percent), and mine cobalt (up 20.3 percent). The most significant declines among metals were those registered for selenium (14.2 percent), tellerium (9.5 percent), and cadmium (8.8 percent). From the viewpoint of actual tonnage increase, the gains by iron ore, pig iron, and crude steel were overwhelmingly dominant, followed by those registered for bauxite, alumina, manganese ore, aluminum ingot, chromite, and copper (both mine and smelter); none of the commodities registering declines showed a substantial decline in terms of tonnage, considering total metal output tonnage.

Among the 23 industrial nonmetallic mineral commodities for which world output data are listed in table 2, 15 showed higher production levels in 1970 than in 1969, and eight registered declines. The most significant increases in terms of percent growth were in the cases of strontium minerals (28.3 percent), gem diamond (16.5 percent), magnesite (9.2 percent), potash (8.9 percent), and fluorspar (7.8 percent); the only sizable percentage decline was that registered by vermiculite (7.3 percent). On a tonnage basis, the 29-million-ton increase in cement output, the 6.8-million-ton increase in salt output, and the 3.5-million-ton increase in phosphate rock production were the most prominent gains and the 816,000 decline in gypsum was the most substantial shortfall.

Tables 30 to 45 in the statistical summary of this chapter give details of output of

selected major nonfuel mineral commodities (both metals and nonmetals) by major producers for 1968–70.

Mineral Fuel Commodities.—Preliminary data indicate that world production of energy commodities in 1970 reached a new high in terms of standard coal equivalent (SCE), as output of all major crude mineral fuels reached new production highs. World output of commercial energy commodities [5] totaled almost 7,022 million metric tons SCE, compared with nearly 6,526 million tons in 1969 and 6,144 million tons in 1968. Each of the commercial energy sources listed in table 2 registered new record highs in 1970; previous record highs for all had been the 1969 levels. In 1970, for the fourth consecutive year, crude oil ranked as the leading source of energy on a percentage basis, and continued to increase its share of the total, as did natural gas; both gained at the expense of coal, and hydrogeothermal-nuclear power retained a consistent share of the total as shown in the following tabulation:

Energy source	Share of total energy production (percent)		
	1968 [1]	1969 [1]	1970 [2]
Coal (including lignite)	37.0	35.7	34.4
Petroleum	41.4	42.0	42.8
Natural gas	19.4	20.0	20.5
Hydro, geothermal, and nuclear electricity	2.2	2.3	2.3
Total	100.0	100.0	100.0

[1] Based on data in United Nations. World Energy Supplies 1966–69. Statistical Papers, Series J, No. 14, New York, 1971 p. 10.
[2] Estimate, based on extrapolation of United Nation's data for 1969 using world production data for listed commodities reported to and published by the U.S. Bureau of Mines.

Among the energy products listed in table 2, which include not only the primary energy sources but such processed items as coke and fuel briquets (mainly from coal), available 1970 output data show gains for all commodities except fuel briquets.

Tables 46, 47, and 48, respectively, give output of coal, natural gas, and crude oil, for 1968–70 by major producing countries.

VALUE OF WORLD MINERAL PRODUCTION

The total value of world crude mineral production cannot be derived simply by totaling figures reported by the various countries, chiefly because: (1) some nations fail to report production values for production of some or all of their output at the crude mineral stage and (2) reporting of production of some commodities (notably clays, sand and gravel, stone, and other crude nonmetallics) is incomplete or wholly nonexistent in many nations. It should also be noted that the definitions of "mineral industry" and "mineral commodities" differ rather widely around the world; crude construction materials at times are included under the construction industry, some commodities regarded in the United States as mineral commodities are included as chemical industry products elsewhere (such as bromine, iodine, and fertilizer materials), and some are even included with food products (as in the case of salt in some nations).

The most comprehensive study on value of world mineral output is the series of articles in the French monthly journal, Annales des Mines, which has been released at approximate 5 year intervals since shortly after World War II. Data in this chapter are based on the most recent of this series,[6] extrapolated to 1970 and expanded to include a more complete list of mineral commodities than that contained in the source publication.

The source article provides estimates of the total world production value for 53 major mineral commodities for the year 1968. Wherever possible, reliable reported national value figures have been used, but where reliable data are lacking, an average world price for the commodity in question has been applied to the reported (or estimated) production tonnage.

In this chapter, the world value reported in the source publication has been increased by a factor of 13 percent to compensate for commodities not covered in the source. This factor has been derived by comparing United States value figures for commodities not covered in the source with total recorded United States crude mineral production value. Although this factor may be of questionable value when applied to the less developed countries of Africa, Asia, and

[5] Excludes wood, charcoal, bagasse, animal dung, and other minor fuels, although such fuels are used as commercial fuels in some countries, and in a few nations, account for a significant part of total energy production.
[6] Callot, F. Production et de la Consommation Mondiale des Minerais en 1968. Annales des Mines, No. 1, January 1971.

Latin America, it is believed that it has reasonable validity for the major industrialized countries of the world. Using the estimated total 1968 world crude mineral output value derived as indicated in the previous paragraph, the 1968 figure has been extrapolated to 1970 utilizing United Nations indexes of crude mineral production. (See table 1 of this chapter for United Nations index numbers.)

Although it has proved possible to estimate the total world 1970 crude mineral production value in this manner, the country-by-country and commodity-by-commodity details of the Annales des Mines study cannot be so extrapolated with any reasonable degree of accuracy considering the time available for such a study. Therefore, utilizing only the data presented in the source publication, tables 4 and 5 have been prepared, detailing the distribution of world crude mineral production in 1950, 1963, and 1968 for 53 commodities on a country (table 4) and commodity (table 5) basis.

The geographic distribution of crude mineral production on a value basis may be considered from three viewpoints. First, examining simply the relative ranking of the various nations, the United States and the U.S.S.R. ranked first and second respectively, from 1950 through 1968 (and almost unquestionably through 1970). Of other individual countries listed in table 4, mainland China made the most impressive gain in ranking, rising from 17th in 1950 to fourth in 1963, a position which it retained in 1968 despite a decline in output value, just behind third ranked Canada. Libya, almost solely on the basis of crude oil production, rose from the status of insignificant output in 1950 to eighth rank by 1968, but the value of its 1968 output was only slightly better than one half that of mainland China. Other countries registering marked increases in rank between 1950 and 1968 were North Korea, Algeria, Brazil, and Iraq. The most prominent loss in rank was that of Belgium (from 12th in 1950 to 40th in 1968); other notable declines were registered by the Netherlands, Sweden, Spain, France, Malaysia, and India.

Second, considering the geographic distribution of crude mineral production value in terms of the actual dollar value, every one of the 40 countries listed individually in table 4 registered a gain between 1950 and 1968 except Belgium, in which case 1968 output value was less than one half of the 1950 level owing chiefly to reduced coal production. Between 1963 and 1968, however, 11 nations registered declines in actual cash value of production. The countries registering declines were industrialized nations of Europe with two exceptions—mainland China and Venezuela. Included were three countries in communist Europe (Czechoslovakia, East Germany, and Poland) and six in Western Europe (Belgium, France, West Germany, the Netherlands, Sweden, and the United Kingdom).

Third, examining the geographic distribution of value from the viewpoint of percent of total accounted for by each country, it is perhaps most significant to note that although the United States has retained first rank, its share of the total has been steadily eroded and that of the second-ranked U.S.S.R. has consistently increased. Of the 40 top-ranked countries (in 1968) listed individually in table 4, 19 may be classed as developed countries and 21 as developing nations. Of the developed countries, 11 (the United States, West Germany, the United Kingdom, Poland, France, Japan, Czechoslovakia, Spain, Sweden, the Netherlands, and Belgium) showed declines in their percentage share of total world value of output between 1950 and 1968, and eight (the U.S.S.R., Canada, Republic of South Africa, Australia, East Germany, Romania, Italy, and Yugoslavia) showed gains in share. In contrast, 16 of the developing nations gained in relative share of the total and only five declines. It also should be noted that of the eight developed nations listed above as registering gains between 1950 and 1968, the first four all had sizable areas of relatively untouched land from the viewpoint of mineral extraction in 1950.

Another aspect of the percentage distribution of total output value that is worthy of note is the fact that aside from the United States and the U.S.S.R., no other single nation has accounted for 6 percent or more of the total in any of the 3 years listed, and only 19 individually accounted for between 1 and 6 percent each of the total in 1968 (there were 14 such countries in 1963 and 16 in 1950).

Reviewing the commodity distribution of world crude mineral production value (table 5) from the viewpoint of numerical ranking of commodities, probably the most important single change between 1950 and 1968 was the displacement of coal by crude oil as the first-ranked commodity, a situation which would remain true even if lignite (reported separately in the table) were added to anthracite and bituminous coal. Also of significance is the advance of natural gas from sixth rank to third, particularly when it is noted that the data presented is only a measure of marketed production, excluding the large quantities presently produced along with crude oil in a number of countries and reinjected to reservoirs or simply flared without being used, owing to lack of access to markets.

Considering the commodity distribution of world crude mineral output value on the dollar basis, it is significant to note and comment briefly on the few declines registered between 1950 and 1963 and between 1963 and 1968, rather than to emphasize the pattern of increase that has prevailed for most of the 26 listed commodities. Comparing 1963 levels with those of 1950, only lead and zinc registered declines, and these were wholly due to price falls rather than to declines in output. Comparing 1968 levels with those of 1963, and considering the 26 commodities listed individually in the table, five showed a lower value in 1968 than in 1963 (anthracite and bituminous coal, lignite, gold, uranium, and manganese) and of these, only uranium was produced in a smaller quantity in 1968 than in 1963, with the declines for all except uranium then being a result of lower unit prices.

From the viewpoint of the percentage share of total crude mineral production value accounted for by each of the 26 commodities listed individually, probably the most striking feature is the overwhelming perponderance of the total accounted for by fuel commodities. In 1968, fuels including uranium accounted for 72.72 percent of the total. It should be noted, however, that this fuels total has declined from the 76.62 percent recorded for 1963 and the 77.74 percent recorded for 1950 (with uranium excluded), and that although the fuels total has fallen off, this is almost wholly the result of declines registered by coal and lignite. Crude oil and natural gas have regularly shown increases.

TRADE

GENERAL TRENDS

In 1970, the aggregate value of world mineral commodity trade undoubtedly exceeded the estimated $71,390 million level attained in 1969, but data available at this writing was not sufficiently complete to provide a basis for estimation of the 1970 level with any certainty. Despite the absence of complete 1970 trade data, it was apparent that during this year, as in 1969, the less industrialized countries continued to expand their output of mineral commodities for processing in the developed countries at a greater rate than the developed countries increased internal production of these materials. The 1970 aggregate value of mineral commodities traded was increased over that of 1969 both by increased shipments of crude and partly processed mineral commodities from the less developed countries to developed countries, and by a greater flow of mineral semimanufactures from developed countries to the less industralized nations, as the latter's requirements for such materials continued to increase. As in recent years, another contributing factor to the higher value of mineral commodity trade was the continued climb of prices paid for many minerals.

In 1969, the latest year for which largely complete trade returns are available on a worldwide basis, mineral commodities in aggregate were estimated to have accounted for 26.2 percent of total commodity trade, a lower share of the total than in any year 1965–69 except for 1966, as shown in the following tabulation:

Year	Estimated value of all mineral commodities traded [1] (million dollars)	Increase relative to previous year (percent)	Mineral commodities' share of all commodities traded (percent)
1965	r 49,880	9.3	26.8
1966	r 53,070	6.4	26.1
1967	56,540	r 6.5	26.4
1968	r 63,550	r 12.4	r 26.6
1969	71,390	12.3	26.2

r Revised.

[1] Value estimated from data on major mineral commodities appearing in table 6, to which have been added a factor for mineral commodities not included in that table. The factor added is based on comparison of complete mineral trade value returns for selected countries with data given for these same countries in the source for table 6, which includes only the selected mineral commodity groups specified in the footnotes to that table. This comparison indicates that the recorded mineral commodities listed in table 6 represent about 81.5 percent of total mineral commodity trade.

Although the share of total commodity trade value accounted for by mineral commodities was at a low point for recent years, it should be stressed that this did not result from any lessening in the growth rate for mineral commodity trade value. To the contrary, the 12.3-percent increase in value of mineral commodity trade between 1968 and 1969 was only marginally less on a percentage basis than that between 1967 and 1968, and in terms of dollars, was actually greater.

COMMODITY GROUP TRADE PATTERNS

Table 6 gives the value of world export trade in major mineral commodity groups for 1965–69 and provides for comparative purposes the value of total world commodity exports. Although each major group of mineral commodities has shown an unbroken growth trend during 1965–69 (except for iron and steel, which declined fractionally between 1965 and 1966), there have been significant variations in the proportion of total major mineral commodity trade accounted for by each of the principal groups of these commodities, as shown in table 7. These variations are the result of different growth rates registered by the several commodity groups listed. These growth rates are given in table 8. The patterns of generally declining proportion of total major mineral commodity trade accounted for by ores, concentrates and scrap, a pattern extending from 1964 (or before) through 1968, was reversed in 1969, with these commodities accounting for slightly more of the total than in 1968. Iron and steel and nonferrous metals also showed gains in share of total over those of 1968; the former exceeding the share that it held in any year since 1964 except 1965, the latter reaching a higher level than any since 1964. Crude nonmetals registered a small decline in share of total; the only significant downturn in share of total was that of mineral fuels, which fell to a lower level than any recorded during 1964–68.

Table 8 emphasizes the general upturn in the value of export trade in each of the major mineral commodity groups. Within the 5-year span covered by the table, only in the case of iron and steel was there a decline registered relative to the previous year's level, and this decline was only a fraction of 1 percent. Comparing the growth rates recorded for the aggregate of the five individual commodity groups listed with that of overall commodity export trade, the major mineral commodities in 1970 did not register as large an increase as did total commodity trade. This reversed the pattern established for the preceding 5 years, during which growth in total commodity trade value was greater than in major mineral commodity trade value only in 1 year (1966).

REGIONAL TRADE PATTERNS

Data on the geographic distribution of world trade in major mineral commodities (metal ores, concentrates and scrap, ingots and semimanufactures of iron and steel and of nonferrous metals, crude nonmetals, and all mineral fuels) are presented in terms of dollar value in tables 9, 10, and 11 for 1969, the latest year for which reasonably comprehensive data are available. Table 9 is designed to show the importance of total major mineral commodity export trade relative to total commodity export trade for the world as a whole and for selected individual countries and country groups. Table 10 gives the breakdown by commodity groups of total major mineral commodity trade, in terms both of exports from and exports to each of these selected countries and country groups, reflecting to some extent regional self-sufficiency or lack thereof for each commodity group. Table 11 shows the direction of flow of total value of major mineral commodity trade by selected countries and areas in matrix form.

The following tabulation gives the distribution of world trade in major mineral commodities between industrialized nations and less developed countries for 1969:

Destinations [1]	Sources of exports [1]			
	Market economy countries		Centrally-planned economy countries	Total
	Industrialized	Less developed		
Value in million dollars:				
To market economy countries:				
Developed	23,620	18,175	1,975	43,770
Less developed	3,592	4,112	446	8,150
To centrally-planned economy countries	1,648	443	4,169	6,260
Total	28,860	22,730	6,590	58,180
Share of world total in percent:				
To market economy countries:				
Developed	40.6	31.2	3.4	75.2
Less developed	6.2	7.1	.7	14.0
To centrally-planned economy countries	2.8	.8	7.2	10.8
Total	49.6	39.1	11.3	100.0

[1] Sources and destinations grouped according to United Nations' practice; developed market economy countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, West Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Republic of South Africa, Spain, Sweden, Switzerland, Turkey, U.S.S.R., United Kingdom, United States, and Yugoslavia; centrally-planned economy countries are: Albania, Bulgaria, People's Republic of China, Czechoslovakia, East Germany, Hungary, North Korea, Mongolia, Poland, Romania, U.S.S.R., and North Vietnam; less-developed market economy countries includes all countries not specifically listed previously in this footnote.

The data presented in the foregoing tabulation are comparable with that provided in the 1969 edition of the Minerals Yearbook insofar as the range of mineral commodities included, but differ in the geographic breakdown, in that the communist nations have been reported separately. Thus, complete comparison with the results published previously is not possible. Comparing the foregoing data with similarly arrayed data for 1968, all entries in the tabulation increased in actual value. From the viewpoint of relative shares of the total, however, the developed market economy countries increased their share of total major mineral commodity export shipments from 48.9 percent in 1968 to 49.6 percent in 1969, at the same time maintaining their share of export receipts at the 75.2 percent level. Both the less developed market economy nations and the centrally planned economy nations recorded declines in their shares of export shipments, the former from 39.7 percent in 1968 to 39.1 percent in 1968 and the later from 11.4 percent. In terms of export receipts, the less developed market economy nations received only 14 percent of the 1969 total compared with 14.2 percent of the 1968 total, while the centrally planned economy nations registered an increase from 10.6 percent to 10.8 percent.

As in past years, table 9 illustrates the marked disparity between regions in the share of total regional commodity exports accounted for by the major mineral commodities. For example, in the Near East, largely as a result of its oil exports, the major mineral commodities accounted for 81.7 percent of total commodity exports. Other areas registering very high shares of total commodity trade accounted for by minerals include those nations classified as "rest of world" with 53 percent; nonindustrialized Africa (Africa excluding the Republic of South Africa) with 51.4 percent; and Latin America with 39.1 percent. It may be significant to note, however, that of these three areas, only nonindustrialized Africa registered a higher percentage in 1969 than in 1968. At the other end of the spectrum are the United States, where major mineral commodities accounted for only 10.6 percent of total commodity trade, and Communist Asia, which registered only 5.6 percent. It should be noted that the figures presented in the table for the Republic of South Africa represent only the value of fuels exports; thus the 4.6-percent share of total commodity trade reported in the table is not indicative of this nation's true position. Addition of value data for gold (not included in any figures for commodity trade) and of unreported data for the nation's substantial exports of diamond and a variety of metals would raise the percentage appreciably.

Considering the exports recorded in table 9 from the viewpoint of indicated recipients, the variation in terms of percent of total commodity trade accounted for by major

mineral commodities is not nearly as wide as the variation from the viewpoint of origin. Japan, for which major mineral commodities account for 41.4 percent of total commodity trade, ranks far ahead of the other countries and/or areas listed. As in past years, most of the industrialized nations other than Japan registered 18 to 25 percent of their total receipts as major mineral commodities. The notable exceptions to this continue to be Canada, the Republic of South Africa and Australia-New Zealand; nations, which with low population densities and sizable undeveloped mineral resources, more closely follow the import pattern of the less developed areas, with major mineral commodities accounting for 12 to 15 percent of total commodity export receipts. Among the specifically identified less developed areas in table 9, only Communist Asia is reported to have received export shipments of major mineral commodities in quantities sufficient for the value to reach a level in excess of 20 percent of the total of commodity shipments to the area. Here, the condition results more from the low level of nonmineral commodity imports rather than from the receipt of substantial quantities of major mineral commodities.

Table 10 requires little in the way of explanation, but the reader should note the principal exclusions of information—no figures appear for metals for the Republic of South Africa, and no data are included for crude nonmetals for Latin America, the Republic of South Africa, the Near East, South Asia-Far East, and Australia-New Zealand. Because a portion of these figures are apparently included under "not reported" and thus apparently do swell the world total to an appropriate level, the importance of these commodities to the specific countries or areas is not shown. Moreover, owing to the scheme of reporting used, Standard International Trade Classification, Revised (SITC), gold is excluded from all the totals.

Table 11, generally speaking, requires no detailed explanation or discussion, but it should be noted that the data contained therein are not exactly comparable to those in outwardly similar tables appearing in any previous editions of this chapter except the 1969 edition (data for 1968). This is because the category of crude nonmetals was included only beginning in the 1969 edition. For general purposes, the reader may compare the 1969 data in table 11 in this chapter with 1968 data appearing in the equivalent table in the 1969 edition, it should be noted that the data appearing in the previous edition is subject to some minor revisions owing to receipt of additional data.

Table 11 is designed to illustrate the relative importance of major geographic and economic regions of the world in terms of their exports and imports of major mineral commodities. As in the case of the preceding five tables (tables 6 to 10), the values entered in this table are all based on the valuation of the materials as exported (excluding shipping costs). Comparison of the total export shipment credited to each country or region (vertical grand total column on last page of table) with total export receipts (horizontal grand total line at the bottom of each page of the table) will indicate the relative position of each area as a net importer or net exporter of major mineral commodities.

CONSUMPTION

NONFUEL MINERAL COMMODITIES

World consumption of most nonfuel mineral commodities, metals and nonmetals, again advanced in 1970 both in terms of gross tonnage and on a per capita basis, but the latter gains were more modest and less universally consistent as world population continued to increase. Considering individual major commodities, world consumption of iron ore apparently reached a record high. Complete data on iron ore consumption for 1970 were not available at this writing; however, for a selected group of 21 nations, including all major world producers of pig iron except mainland China, iron ore consumption in agglomerating plants, blast furnaces, and steelmaking totaled over 602 million tons (total includes some estimates), a figure nearly 4 percent greater than the level recorded for the same nations in 1969, as indicated in table 12. Of total iron ore consumption, over one half is treated in agglomerating plants prior to being fed to the blast furnace; a

relatively small part of the total, about 8 million to 9 million tons annually, is consumed directly in steelmaking and the balance, with or without agglomeration, is fed to blast furnaces and other facilities for the production of pig iron and similar products.

As in the case of iron ore, complete world data for consumption of iron and steel scrap are not available, but for 23 countries listed in table 13, 1970 scrap consumption totaled over 264 million tons, compared with 262 million tons in 1969 and 242 million tons in 1968. It should be noted that the data in table 13 are incomplete even for the countries listed as indicated by the exclusion footnotes in the table.

World consumption of iron and steel, although not recorded, undoubtedly reached a new record, in keeping with the production growth.

In the case of major nonferrous metals, for which estimated world consumption data appear in table 14, world use of aluminum, copper, and lead again recorded increases in 1970 as they had in 1969; zinc and tin consumption were lower in 1970 than in 1969. As in 1969 aluminum showed the greatest increase among major nonferrous metals, 5.4 percent over the 1969 level, but this growth on a tonnage basis was only about 72 percent of that registered in 1969. Growth in copper consumption, totaling only 58,000 tons, constituted an increase of slightly less than 1 percent, considerably below the level attained within each of the past 5 years. As in the case of aluminum and copper, lead consumption advanced more modestly in 1970 than in 1969, only 2.3 percent (78,000 tons), or less than one-third as much as the growth logged between 1968 and 1969. Zinc consumption declined by 3.9 percent in 1970, in contrast to an 8.7-percent increase registered for 1969, and tin recorded a 3.3-percent decline in use in 1970, compared with a 4.6-percent increase in 1969.

Although complete data on worldwide consumption of most nonmetallic mineral commodities are not available, it is certain that use of most major commodities in this group, limestone, cement, sulfur, and fertilizer materials, again advanced in 1970. World consumption of nitrogen fertilizers for the fertilizer year 1969–70 (year ending June 30, 1970) was reported [7] to have reached 31.4 million tons, almost 7.3 percent greater than the total for the preceding fertilizer year. Similarly, consumption of phosphate and potassic fertilizers also were reported to be on the increase, the former by 4.1 percent to about 20.1 million tons of contained P_2O_5 and the latter by 7.5 percent to about 15.8 million tons in terms of K_2O equivalent.[8]

MINERAL FUEL COMMODITIES

Total world consumption of traditional commercial mineral fuels (coal, oil, and natural gas) and of primary electric power (that power produced by means other than the burning of the aforementioned fuels) was estimated to have reached 6,900 million metric tons in terms of standard coal equivalent (SCE) in 1970, but final returns may alter this estimate appreciably. In 1969, the latest year for which reasonably complete returns are available, total consumption of energy as defined previously, including primary electric power, reached 6,416 million metric tons SCE, 6.5 percent above the 1968 level. Table 15 details energy consumption of major source (solid fuels, liquid fuels, natural gas, and primary electric power) and by continental areas for 1965–69 as reported by the Statistical Office of the United Nations. On the basis of data in this table, liquid fuels remained the leading energy source for the third consecutive year, accounting for nearly 40.7 percent of total consumption (40.1 percent in 1968), followed by solid fuels with 36.7 percent of the 1969 total (37.9 percent in 1968). Gaseous hydrocarbons accounted for 20.3 percent of the 1969 total (19.7 percent in 1968), and primary electricity accounted for the remaining 2.3 percent. Liquid and gaseous fuels again registered substantial gains on a quantitative basis and in doing so registered growth rates in excess of that recorded for solid fuels; this further eroded the position of solid fuels in terms of share of total energy consumption. Growth rates for each of the categories on a percentage basis were as follows: Solid fuels, 3.3; liquid fuels, 8.0; gaseous fuels, 9.6; and primary electric power, 7.2.

Even though data for 1970 are not sufficiently complete to determine growth rates

[7] Statistical Office of the United Nations, Statistical Yearbook, 1970. New York, 1971, pp. 538–539.
[8] The British Sulfur Corp. Ltd. Statistical Supplement No. 4, November-December 1971. London, England 1972.

for each class of fuel or the share of each in total consumption, it is certain that the solid fuel consumption growth rate did not equal that of overall energy consumption and that the solid fuel share was thus further eroded in 1970, with liquids and gases increasing their respective shares.

Examining the data in table 15 from a regional viewpoint, the distribution of total 1969 energy consumption varied only slightly from that of 1968, despite some rather significant differences in regional growth rates, owing to the overwhelming dominance of three main areas—North America, Western Europe, and Communist Europe—Asia (the latter being the dominant element in the group of unspecified countries). In terms of regional share of the total, North America remained the overwhelmingly dominant single region, accounting for about 37.0 percent of the total, compared with 28.6 percent for the Communist nations (together with a few minor non-Communist consumers) and to 19.4 percent for Western Europe. North America's share of the total, however, was lower than in 1968 (when it was 37.5 percent), the Communist nations and Western Europe recorded modest gains in share of total, and the Far East (chiefly as a result of Japan's growing industrial activity) registered the most substantial gain (from 7.2 percent of total world energy consumption in 1968 to 7.6 percent in 1969).

From the viewpoint of per capita consumption, each of the world areas listed recorded gains except Caribbean America (down marginally) and Africa (no change between 1968 and 1969).

INVESTMENT

In the absence of comprehensive data on world investment in mineral industry operations, partial data on investment in selected geographic areas and in a few major commodity sectors of the total industry are summarized within this section. Although the data are hardly adequate as a base for extrapolation to estimate worldwide investment, they at least are illustrative of the continued expansion of the industry.

Table 16 summarizes steel industry investment expenditures for countries and country groups within the Organization for Economic Cooperation and Development (OECD). The reported data show that 1970 investment, at $6,549 million was $1,306 million greater than the annual investment in 1969, an increase of over 24.9 percent. This increase was unparalleled in recent years, far exceeding the $469 million, 9.8 percent increase registered between 1968 and 1969. The upsurge in investment was related to three major factors: (1) the increase demand for steel in late 1968 and during 1969; (2) the necessity of increasing productivity and product quality relative to other producers; and (3) the sharply rising costs for the construction and installation of virtually any type of iron or steelmaking facility. Even though the world steel industry continued to register gains in productive capacity, the gains were far less than proportional to the investment recorded.

On a country basis, the distribution of investment growth varied considerably in 1970; Japan led the way, with investment there totaling $395 million more than in 1969, followed by West Germany with 1970 investment $320 million greater than in 1969, and the United Kingdom with 1970 investment $167 million greater than in 1969. In sharp contrast to the increased levels registered in these countries, and smaller but nonetheless substantial increases in other nations, the United States in 1970 recorded a decline of $136 million compared with the 1969 level. Of other nations included, only the Netherlands (among European Economic Community nations) registered a 1970 steel industry investment level lower than that of 1969.

Table 17 summarizes non-Communist world petroleum industry capital expenditures and exploration expenses for 1968–70, distributing the totals on a geographic basis, and table 18 provides the distribution of the same totals on the basis of the various sectors of the industry. In 1970, overall capital expenditures and exploration expenses were 8.7 percent higher than those of 1969, a substantially greater increase than the 2.7 percent logged between 1968 and 1969 but appreciably less than the 14.7 percent growth registered between 1967 and 1968.

From the viewpoint of geographical distribution, the Far East, Western Europe, Western Hemisphere (excluding the United States) and the regionally undistributed investment in foreign flag tanker construction all registered higher levels of annual investment in 1970 than in 1969, and gains in these areas more than compensated for the lower levels registered for the Near East, Africa, and the United States.

Reviewing the various individual regions in order of their share of the 1970 total, the United States, with 41.4 percent of the total, registered a very small decline (0.1 percent with respect to 1969) but, owing to increased investment and expenditures elsewhere, fell short of the 45.1 percent of non-Communist world total that it accounted for in 1969 and appreciably below its 49.3 percent share of the total registered in both 1967 and 1966. In the United States investment for production facilities and chemical plants and exploration expenses fell below 1969 levels and gains in investment in pipelines, marine facilities, refineries, marketing, and other were insufficient to raise the 1970 total above the 1969 level. In Western Europe, which accounted for 15.7 percent of the 1970 non-Communist world total, the level of capital expenditures and exploration expenses exceeded that of 1969 by almost 29 percent, raising that nation's share of the total significantly from the 13.2 percent level of 1969. This upturn was chiefly the result of increased investment in refineries and chemical plants.

In "other western hemisphere" countries—Canada and all of Latin America—a 1.7 percent increase in investment level was recorded between 1969 and 1970, but the region's share of the non-Communist world total declined from 15.1 percent to 14.1 percent as other areas registered greater increases. Within the region increases in capital expenditures and exploration expenses increased for all categories except chemical plants, which showed a substantial decline.

Those capital expenditures not credited to any world area, comprising the expenditures for foreign-flag tankers, accounted for 11.5 percent of total non-Communist world petroleum industry capital expenditures and exploration expenses in 1970, 26.9 percent more than in 1969, when they accounted for only 9.9 percent of the total. This upward shift reflected the continuing trend toward use of more supertankers.

Within the Far East, which accounted for 10.2 percent of total non-Communist world expenditures and expenses in 1970, expanded refinery construction accounted for by far the largest part of the overall increase of 35.4 percent with respect to the 1969 regional figure and was primarily responsible for raising the region's share of the world total from the 8.2 percent level of 1969. Increases in investment were recorded also, however, in every investment category except chemical plants.

For Africa, a decline of 2.2 percent in total capital expenditure and exploration expense was recorded between 1969 and 1970 as a result of lower levels of investment in crude production facilities and in refineries; other categories of investment were at higher levels in 1970, but increased expenditures on these fell short of balancing the lower levels for production and refineries. The region accounted for 4.1 percent of the non-Communist world total in 1970 compared with 4.6 percent in 1969.

Within the Near East, the level of investment fell 21.2 percent, with a 64.3 percent lower level of investment in pipeline construction as the largest single component of the decline. However, lesser investment in crude production facilities and miscellaneous expenditures also contributed. The region accounted for only 2.9 percent of the non-Communist world total in 1970, compared with 3.9 percent in 1969.

Considering total 1970 non-Communist world petroleum industry capital expenditure by sectors of the industry (table 18), crude oil and natural gas production facility expenditures once again headed the list, accounting for 31.0 percent of the total, with capital expenditures for refining ranking second with 18.6 percent followed by marketing, 15.0 percent; marine facilities, 12.2 percent; chemical plants, 7.1 percent; exploration expenses, 6.2 percent; pipelines, 4.0 percent; and natural gasoline plants, 2.7 percent; and miscellaneous expenditures accounting for the remainder, 3.2 percent. Although these percentages differed from those recorded for 1969, the differences were not sufficient to change the relative ranking of the industry sectors except in the case of exploration expenses, which ranked ahead of chemical plants in 1969.

Table 19 details U.S. direct investment in, and earnings and income from, mining, smelting and metal refining and petroleum industry activities in foreign areas for 1968 and 1969. The overall growth rate of this investment in mining, smelting and refining was 8.5 percent between 1969 and 1970, considerably greater than the 4.1 percent growth between 1968 and 1969 but less than 11.5 percent increase between 1967 and 1968. In the case of petroleum investment, the 1970 level was 9.6 percent above that of 1969, compared with a 5.3 percent increase between 1968 and 1969 and an 8.6 percent increase between 1967 and 1968. On a regional basis, U.S. mining, smelting and refining investment showed declines between 1969 and 1970 in Europe and Africa with increases in other geographic areas, and petroleum industry investment was higher in all areas except the Near East international shipping.

TRANSPORTATION

MARINE TRANSPORT

Three major classes of vessels are engaged in transporting mineral commodities; oil tankers, bulk carriers, and freighters. Table 20, derived from a U.S. Maritime Commission report, summarizes the world's total merchant fleet in terms of number of vessels and tonnage, listing these classes separately. In the case of each of these major classes, not all of the vessels listed are engaged wholly or even partly in transporting mineral commodities. Tankers, although unquestionably most heavily devoted to trade in crude oil and refinery products, move some chemicals and other materials such as whale oil. Bulk carriers, heavily engaged in movement of metal ores, cement, and fertilizers, also move substantial quantities of bulk agricultural products. Freighters are not primarily engaged in mineral commodity shipment but nonetheless move sizable quantities of metal ingots and semimanufacturers, as well as some ores and concentrates.

Although data are not available on a worldwide basis as to the share of mineral commodity trade in total commodity movement, it is significant that in fiscal 1971, 61 percent by weight of all goods transiting the Panama Canal were mineral commodities. On the basis of this figure, it may be inferred with reasonable certainty that mineral commodities' share of the world total movement of goods is even higher, because of the fact that the dimensions of the Canal's locks exclude the large tankers and bulk carriers that account for a growing proportion of mineral commodity movement.

From data in table 20, the world merchant fleet [9] at yearend totaled 19,980 vessels with a gross tonnage of 211,401,000 tons and a deadweight tonnage of 326,999,000 tons, increases of 2.1 percent, 7.7 percent, and 9.9 percent, respectively, over 1969 totals. The percentage increases registered for the total merchant fleet during 1970 exceeded those recorded between 1968 and 1969, and except for number of vessels, were greater than those recorded between 1967 and 1968.

Although increases were recorded for all classes of vessels comprising the merchant fleet in all catagories of measurement (number, gross tonnage, and deadweight tonnage), the percentage increases were radically different between the various ship classes. Tankers and bulk carriers, which have consistently recorded gains in both number of vessels and tonnage, continued to show growth, and reversing the 1968–69 declines, both freighters and other vessels (passenger-cargo, passenger-refrigerated cargo and refrigerated freighters) increased, but at much more modest rates. Distribution of the world merchant fleet by vessel type continued to shift in 1970, with tankers and bulk carriers accounting for an increased share of both in numbers and tonnage.

Tankers.—Expansion of the world tanker fleet in 1970 continued at a more rapid pace than that of the total world merchant fleet. On a tonnage basis the growth recorded exceeded that registered for any of the last 5 years. On the basis of number of vessels, the growth was at a lower rate than any recorded since 1966–67, reflecting the continued heavy expansion in supertankers. Between yearend 1969 and yearend 1970, the total tanker fleet increased by 3.9 percent in number of vessels, 11.9 percent in gross tonnage, and 14.1 percent

[9] Oceangoing steam and motor ships of 1,000 gross tons and over.

in deadweight tonnage; comparable figures for the previous corresponding period were 4.5 percent, 10.9 percent, and 13.9 percent, respectively.

The average gross tonnage of tankers in service increased from 19,518 tons in 1969 to 21,006 tons in 1970; in terms of deadweight tonnage the increase was from 32,774 tons to 36,171 tons. By way of comparison, in 1966 the average gross tonnage was 16,343 tons, and the average deadweight tonnage was 25,768 tons. The shift toward larger tankers is more dramatic when examined in detail by various size groups, and is particularly pronounced when data for existing vessels are compared with those for planned new construction. Table 21, compiled from a source other than the U.S. Maritime Commission (and thus differing slightly in totals given by that source and appearing elsewhere in this section), indicates that of the total world's 1970 tanker fleet of almost 156 million deadweight tons, 28.9 percent was in tankers of over 105,000 tons, compared with 11.2 percent in 1968 and only 3.6 percent in 1966. Even more significant is the fact that 18.4 percent of the total 1970 tanker fleet on a tonnage basis was in vessels exceeding 205,000 deadweight tons. When and if additions underway or on order at yearend 1970 are completed, and discounting reductions in deadweight tonnage owing to losses, scrapping, and other deletions from the roster of vessels in service at yearend 1970, 48.8 percent of the tanker fleet at that time will be in ships of over 105,000 deadweight tons including 39.2 percent in vessels exceeding 205,000 tons.

The rapid changeover in the world tanker fleet continued in 1970 and is reflected in the breakdown of the total tonnage of vessels by age groups. The following tabulation compares the 1970 distribution of total tonnage by age groups with that recorded for 1969:

Year of completion	Percent of total tonnage	
	1969	1970
Up to yearend 1945	4.5	3.8
1946–50	2.1	1.7
1951–55	11.1	9.2
1956–60	21.6	18.9
1961–65	26.0	22.7
1966–70	34.7	43.7

Source: British Petroleum Co. Ltd. BP Statistical Review of the World Oil Industry—1970. Bayard Press, London, 1970, p. 14.

Distribution of the world tanker fleet at yearend 1970 by flag of registry ranked in order of national aggregate deadweight tonnage was as follows:

Country	Number of vessels	Deadweight tonnage (thousand tons)
Liberia	730	36,802
United Kingdom	434	20,863
Norway	363	17,351
Japan	368	16,036
United States	294	7,739
Greece	216	7,714
France	135	5,799
Panama	173	5,692
U.S.S.R.	394	5,167
Italy	198	4,585
Netherlands	92	3,532
Germany, West	59	2,956
Sweden	80	2,887
Spain	109	2,533
Denmark	53	2,337
Other	534	11,082
Total	4,232	153,075

Bulk Carriers.—As in the case of tankers, world bulk carrier fleet growth between yearend 1969 and yearend 1970 exceeded the level of growth of the total merchant fleet during that period. In fact, growth in the bulk carrier fleet exceeded that registered for tankers in both number of vessels and gross tonnage, with tankers leading bulk carriers only in deadweight tonnage growth. The number of bulk carriers increased 7.5 percent, their gross tonnage advanced 13.1 percent, and their deadweight tonnage increased by 14.1 percent. Although these figures significantly exceeded those registered for 1968–69, they did not approach the 1967–68 growth rates.

As noted above, this class of vessel includes both those moving crude minerals and concentrates and those hauling bulk agricultural products. However, the continued significant growth is attributed chiefly to additions of large ore carriers and of large combination (ore-oil-other material) carriers. Although Maritime Commission data do not distinguish mineral commodity-oriented bulk carriers from those engaged in agricultural trade, other sources indicate that at yearend 1968 the aggregate deadweight tonnage of combined ore-oil-other material carriers was 11 million tons, with 7 million deadweight tons of such vessels under construction; at yearend 1969, 13.6 million deadweight tons of such ships were reported under construc-

tion (no figure for completed vessels available).

As in the case of tankers, there has been a marked upturn in the average size of bulk carriers. At yearend 1966, such vessels had an average gross tonnage of 10,967 tons (16,762 deadweight tons), and at yearend 1970, the average gross tonnage was 15,978 tons (26,125 deadweight tons).

Almost 82 percent of the total number of bulk carriers in service at yearend 1970 and over 88 percent of the aggregate deadweight tonnage of such vessels was registered under the flags of 13 nations shown in the following tabulation, ranked in order of the deadweight tonnage under each flag:

Country	Number of vessels	Deadweight tonnage (thousand tons)
Liberia	590	19,191
Japan	429	13,249
Norway	341	11,637
United Kingdom	296	6,603
Greece	177	3,988
Italy	123	3,316
Germany, West	92	2,859
Sweden	78	2,375
India	37	1,334
France	61	1,240
U.S.S.R.	132	846
Denmark	26	781
United States	38	767
Other	534	8,987
Total	2,954	77,173

Freighters.—Freighters, which constituted 55 percent of the world's merchant fleet in terms of number of vessels at yearend 1970 accounted for only 30 percent of the aggregate gross tonnage and 27 percent of the aggregate deadweight tonnage of the total merchant fleet in that year. Compared with tankers and bulk carriers, a much smaller proportion of the total number of these vessels are engaged in moving mineral commodities; nonetheless mention of this class of ship is in order since they are the prime class of ocean carrier for processed mineral goods, particularly metal smelter and mill products. Although the number of freighters in service at yearend 1970 increased very slightly relative to those in use at yearend 1969, the growth was far less than in the case of tankers and bulk carriers; the same was true for tonnage data.

Although the trend toward gigantism noted for tankers and bulk carriers did not extend to freighters, there has been a modest increase in size in the average of such vessels, from 5,595 gross tons and 7,871 deadweight tons in 1966 to 5,742 gross tons and 7,949 deadweight tons in 1970.

Principal nations of registry of freighters are listed in the following tabulation in order of their share of aggregate deadweight tonnage of total world freighter fleet at yearend 1970:

Country	Number of vessels	Deadweight tonnage (thousand tons)
United States	1,048	11,574
Japan	1,222	9,583
United Kingdom	829	7,465
U.S.S.R.	1,138	7,214
Greece	738	6,270
Germany, West	768	5,473
Liberia	470	4,697
Norway	416	3,217
Netherlands	292	2,487
Panama	350	2,259
India	180	1,792
Other	3,547	25,447
Total	10,998	87,428

PANAMA AND SUEZ CANALS

The Panama Canal in 1970 registered a record level of mineral commodity transit in 1970. Of the grand total of 116,091,000 metric tons of cargo passing through the canal in vessels classified as commercial ocean traffic, 72,462,000 ton, or 62.4 percent, consisted of mineral commodities. The 1970 figure exceeded that of 1969 by nearly 13.5 percent and in terms of percentage of total goods transiting the canal was about 0.43 percent higher than in 1969. The fact that the mineral commodity share of the total was once again higher than in the previous year remained particularly significant in view of the previously mentioned trend toward construction of vessels too large to transit the canal. The following tabulation, which summarizes Panama Canal activities, shows the importance of mineral commodities to total trade:

	Fiscal years		
	1968	1969	1970
Number of transits:			
Commercial ocean traffic	13,199	13,150	13,658
Other traffic	2,312	2,177	1,865
Total	15,511	15,327	15,523
Cargo moved (million metric tons):			
Commercial ocean traffic:			
Mineral commodities	60.3	63.9	72.5
Other commodities	37.8	39.1	43.6
Subtotal	98.1	103.0	116.1
Other traffic, all commodities	9.1	7.5	4.7
Total	107.2	110.5	120.8

Details on the distribution of commercial ocean traffic transiting the canal by vessel type, by direction of movement (Atlantic to Pacific or Pacific to Atlantic), and by the status of the vessel (in ballast or laden) are given in table 22 together with the tonnage of cargo moved by each type. Table 23 lists movements of specific mineral commodities and commodity groups on a tonnage basis for 1968–70, also indicating direction of movement.

Of total Panama Canal traffic in mineral commodities in recent years, about three-quarters has been from the Atlantic to Pacific. Of this material destined for the Pacific, coal and coke and petroleum (crude and refined) have been the dominant commodities; in 1970, coal and coke together accounted for 40.9 percent of the total and petroleum for 27.8 percent. Of the approximate one-quarter of total Panama Canal mineral commodity movement that is in the Pacific to Atlantic direction, steel semimanufactures have been the dominant commodity group, accounting for 31.9 percent of the 1970 total.

In 1970, Pacific to Atlantic mineral commodity movement increased 25.9 percent on a tonnage basis over the 1969 level, chiefly as the result of a 1,577,000-metric-ton (96 percent) increase in petroleum shipments in that direction. This increase, together with those recorded for other commodity groups that were lesser on a tonnage basis if not on a percentage basis, more than compensated for a decline registered for 10 of the 36 commodity groups listed in table 23. In comparison, Atlantic to Pacific mineral commodity movement increased only 9.5 percent between 1969 and 1970, largely as a result of the 31-percent increase in coal and coke shipments and a 29.9-percent increase in bauxite and alumina shipments, increases that were in part offset by lower levels of shipment for 17 of the 36 commodities listed in table 23. The most significant decline on a tonnage basis was that for phosphatic fertilizers that fell by 945,000, a 20-percent decline.

The Suez canal continued to have only a negative influence on marine mineral transport patterns, as this maritime shortcut from the Indian Ocean producing areas to European consuming centers remained closed for the third full year as a result of continued confrontation between the United Arab Republic and Israel along the Canal. Deliveries of Persian Gulf oil to European markets continued to increase, and except for shipments moving overland by pipeline from the producing areas to Eastern Mediterranean ports, which were limited by pipeline capacity, the entirety of such oil shipments were forced into the Cape of Good Hope shipping route.

OCEAN FREIGHT RATES

Table 24 presents United Nations indexes of selected ocean freight rates for 1967–70, including quarterly figures for 1969 and 1970. Owing to the fact that the United Nations has revised the list of selected rates chosen for publication, data are not available for 1969 and 1970 for all rates used in previous editions of this chapter, but it is clear from series that have been continued that 1970 rates advanced sharply, not only reversing the general downtrend of the period 1967–69, but reaching levels greater than any recent previous high.

PIPELINES

Although space limitations and the unavailability of complete worldwide summaries of existing pipeline systems prohibit any detailed reporting of pipeline development on a worldwide basis, some mention of major projects of international significance appears in order and is presented in the following paragraphs without any pretense as to completeness.

In the Western Hemisphere, the most newsworthy crude oil pipeline projects under study were those planned to move crude oil from Alaska's northern slope, the

Prudhoe Bay field, to Canadian and U.S. markets. By yearend, considerable construction equipment and supplies for the proposed Trans-Alaska Pipeline System (TAPS) were in Alaska on or near the construction site, but work was held up pending the settlement of ecological and native land claim disputes. This line, if and when built, will link the Prudhoe Bay area to the Gulf of Alaska. The second proposal, a line from Prudhoe Bay to the Edmonton, Alberta, area in Canada was also under assault from environmentalists, and those proposing such an installation had established a test installation to determine the effect of a hot oil pipeline on permafrost, one of the environmental problems that had been raised.

In Latin America, the 364-mile, 16-20-26 inch Trans-Ecuadorian Pipelines Systems crude oil line from Lago Agria to Esmeraldas was underway to provide a means of moving crude from the inland fields to the coast for export.

In the Near East, continued closure of the Suez Canal coupled with the knowledge that even should the Canal be reopened, its depth and width preclude its use by supertankers led to several proposals for additional pipeline facilities. One major proposal that received considerable initial backing was a line paralleling the Suez Canal from the head of the Red Sea to the Mediterranean. Such a line would permit supertankers to move oil to the southern end of the Canal, where the oil would be offloaded, piped to the northern end, and there loaded on other supertankers for delivery to Europe. In theory, at least, such a scheme would have considerable economic advantages, at least in the near future, even if the Canal should be reopened.

Another Suez Canal bypass scheme was that of the Petroleum Transport Authority, an Iranian-Turkish Government venture, for a 1,055-mile, 42-inch crude line from the southern Iranian oilfields to the Turkish Mediterranean port of Iskenderun.

One of the traditional Suez Canal bypass pipelines, the long operative Trans Arabian Pipeline (TAPLine), operated through the first four months of 1970, but was closed from May 3 through yearend, following a rupture of the line by a bulldozer. Iraqi Government action prevented repair of the line during the year. This major disruption in oil deliveries followed close on the heels of interruptions in 1969 when the line was shut down for a total of 110 days. The Iraq Petroleum Company pipeline system, which also crosses Syria, suffered no major interruptions during 1970.

Within West Europe, expansion and extension of the Southern European and Trans-Alpine (TAL) crude oil systems continued, and in East Europe, expansion of the Comecon crude oil pipeline network also was furthered.

Studies and negotiations continued regarding a proposed 4,200-mile, 40-inch crude oil line from the Tyumen oil fields in the U.S.S.R. across Siberia to the port of Nakhodka on the Sea of Japan, from where crude would be moved to Japan. A tentative completion date of 1974 had been set at yearend, but work evidently had not started.

In a continuing effort to utilize natural gas produced in conjunction with crude oil, and heretofore not used owing to inadequate markets, Iran and the U.S.S.R. completed a natural gas line linking fields in the former country with market areas in the latter and the line was being placed into operation at yearend. This was the second such international line for the Soviets, preceded by a shorter line connecting gas deposits in northern Afghanistan with adjacent areas in the U.S.S.R.

In a similar case, a feasibility study was completed and planning started on a gas pipeline to link Algerian fields with Sicily and (across the Messina Strait) to Italy. At yearend, completion of this line was forecast for 1975.

Iraq indicated plans for a 750-mile, 42-inch gas line to link North Rumaila field to the Mediterranean coast, with a completion target of some time in 1972.

In connection with exploitation of the Groningen gas field in the Netherlands, additional gas pipelines were being laid in Western Europe, not only in the Netherlands but also within West Germany and Switzerland.

In East Europe, work was underway on a 1-trillion-cubic-foot-per-year gas pipeline to carry Soviet produced natural gas to Austria, Italy, East Germany, and West Germany, with completion of the first phase of the 56-inch line, which crosses Czechoslovakia, scheduled for 1973 (final phase after 1975).

The U.S.S.R. asked Japanese interests to consider a cooperative effort on a proposed 1,800-mile gas line to link the Yakutsk fields of the Soviet Union with Japanese markets.

In Australia, surveys were underway for an 825 mile gas line from the Gidgealpa-Moomba area of South Australia to Sydney and other market areas in New South Wales, with completion of the line expected in 1972. Also, a 255-mile gas line was under way from Longara field to Perth and thence to Pinjarra, with completion expected in 1971.

In the field of international petrochemical pipelines, additional construction was announced and underway in 1970 linking chemical plants in West Germany, the Netherlands, and Belgium, and at least one such line under construction in 1969 was completed.

PRICES

With the notable exception of steel, most mineral commodities registered higher average prices for 1970 than for 1969, but examination of monthly average prices indicated a general downturn in a number of areas toward the end of the year. In the case of steel, following slight increases registered in early 1970 above mid-1969 levels, prices for steel semimanufactures on European markets turned markedly downward and by yearend in general were 20 percent or more lower than on January 1, although they had not fallen to the level of mid-1969. In Japan, there was a downturn fairly early in the year, with a subsequent increase in the third quarter followed by another decline; in the United States little if any decline was evident, with the 1970 average annual price still remaining above the 1969 level.

Major nonferrous metal prices for 1968–70, with 1970 data on a monthly basis are presented for the United States, the United Kingdom, and Canadian markets in tables 25, 26, and 27, respectively. The aluminum price advanced in April in the United States and the United Kingdom reflecting market firmness; there was no change in the Canadian price.

The monthly average copper price advanced on all three markets in the first quarter of 1970; then advanced on the U.S. market in the second quarter but failing to change in Canada and declining on the London market. In the third quarter, the U.S. price joined the London price in a decline (a further lowering on the London market) with the Canadian price again remaining unchanged. Finally, in the fourth quarter, all three markets recorded declines. Nevertheless, the average 1970 price in both the United States and Canada was substantially above that for 1969; only on the London market was the 1969 average price higher. World output of copper (both mine and smelter) reached new highs in 1970, in response to the demand that had steadily driven the price upward, and the fall-off in the price reflected an approach to supply-demand advilibrium.

The 1970 annual average lead and zinc prices on all three markets stood at higher levels than those of either 1968 or 1969, but the December 1970 monthly average price for both metals on each of the markets was lower than the previous year's average, as a result of declines beginning about midyear.

The tin price on both the London and U.S. markets fluctuated irregularly through 1970 with a considerable downturn at yearend, but on the whole was higher than the 1969 average; the silver price on all three markets, although fluctuating over the course of the year, was lower in terms of annual average than in 1969 and 1968.

Tables 28 and 29 give the United Nations calculated export price indexes (1963=100) for mineral commodities. The declining trend of 1964–68 for overall crude mineral prices had been reversed in 1969, and the reversal continued in 1970, with the 1970 index standing at 109, 5 points higher than that of 1969. Considering metal ores only, the 1970 annual average index at 122 was considerably higher than the 114 average for 1969, but within the year there was a downturn after the first quarter. In contrast, the index for fuels only increased in each quarter of 1970, with the 1970 average standing 5 points above that of 1969.

As in 1969, the developed nations' export price indexes for mineral commodities stood at an appreciably higher level than did the index for mineral commodities for less

developed areas. The total minerals index for the developed areas increased throughout the year from 118 for the first quarter to 126 for the fourth quarter, giving an average of 122, and that for the less developed countries stood at 104 throughout the year, 1 point higher than the 1969 average. In the case of nonferrous base metals, the annual average index for less developed countries was higher than that for developed areas, and, although both areas registered a 1970 average above that of the previous year, there was a downward trend from the first quarter onward.

Details on world prices of other mineral commodities are generally not available in forms that are suitable for comparison without detailed analysis. Nonetheless it appears almost certain that the general trend in prices for crude oil and petroleum refinery products, the broad group that accounts for the largest part of total world mineral production value, advanced again in 1970.

STATISTICAL SUMMARY OF WORLD PRODUCTION AND TRADE OF MAJOR COMMODITIES

The final 30 tables in this chapter (tables 30 to 59) extend the statistical series that was started in the 1963 edition of the International Area Reports volume of the Minerals Yearbook and that was subsequently updated in the 1965, 1967, 1968, and 1969 editions. They are provided both as a supplement to other statistical data within this chapter and as a summary of international production and trade data for major commodities covered in greater detail on a commodity basis in Volume I of the 1970 Minerals Yearbook and on a country basis in Volume III.

The data presented here on production (tables 30 to 48) in most instances are the metric unit equivalents of world production tables included in Volume I; as such they may differ somewhat from data appearing in the individual country chapters of Volume III, some of which were prepared prior to the Volume I tables and some of which were prepared after the Volume I tables. The differences between the figures appearing in these two volumes are chiefly the result of receipt of more recent information. Two additional commodities, nitrogenous fertilizers (reported in terms of nitrogen content) and salt have been added to the list of commodities covered in the summary tables in consideration of their inportance from the viewpoint of value of production.

The data on world trade in major mineral commodities presented in this chapter (tables 49 to 59) may not correspond exactly to those presented elsewhere in the Minerals Yearbook because these summary tables were compiled from sources other than those used in the individual country chapters in order to obtain data on a consistent basis. The differences, however, are regarded as unimportant from the viewpoint of displaying the general pattern of trade in these commodities.

Table 1.—United Nations indexes of world [1] mineral industry production

(1963 = 100)

Industry sector and geographic area	1968	1969	1970	1970 by quarters			
				1st	2d	3d	4th
EXTRACTIVE INDUSTRIES							
Metals:							
Non-Communist world	121	126	134	126	138	138	135
Industrialized countries [2]	122	124	135	125	140	139	136
United States and Canada	123	124	141	131	147	147	141
Europe	116	120	120	107	129	116	128
European Economic Community [3]	95	96	90	93	90	84	91
European Free Trade Association [4]	134	135	131	105	151	123	147
Australia and New Zealand	159	184	194	171	197	205	203
Less industrialized countries [5]	121	130	133	129	134	137	131
Latin America [6]	124	133	136	134	138	139	134
Asia [7]	120	126	138	128	136	145	144
Communist Europe [8]	160	167	181	182	179	182	180
World	130	135	145	139	147	148	145
Coal:							
Non-Communist world	91	89	89	90	90	85	91
Industrialized countries [2]	89	87	86	87	87	82	89
United States and Canada	114	114	124	116	126	120	132
Europe	80	77	74	77	74	69	75
European Economic Community [3]	80	79	77	78	76	74	80
European Free Trade Association [4]	77	71	66	73	70	58	63
Australia and New Zealand	151	168	182	158	186	199	181
Less industrialized countries [5]	114	120	120	120	121	116	121
Latin America [6]	131	135	138	NA	NA	NA	NA
Asia [7]	114	119	118	120	121	113	119
Communist Europe [8]	112	116	121	120	118	119	126
World	100	101	103	103	102	99	106
Crude petroleum and natural gas:							
Non-Communist world	136	147	159	156	156	157	165
Industrialized countries [2]	119	124	131	131	128	127	136
United States and Canada	120	123	130	129	126	126	135
Europe	131	143	158	165	151	148	169
European Economic Community [3]	133	147	164	173	157	152	177
European Free Trade Association [4]	NA	NA	NA	NA	NA	NA	NA
Australia and New Zealand	NA	NA	NA	NA	NA	NA	NA
Less industrialized countries [5]	158	177	196	189	194	196	204
Latin America [6]	117	118	121	120	120	122	123
Asia [7]	155	173	191	183	187	192	201
Communist Europe [8]	155	162	174	176	176	174	169
World	140	150	162	160	160	160	166
Total extractive industry:							
Non-Communist world	124	131	140	137	139	139	145
Industrialized countries [2]	115	117	124	122	123	122	128
United States and Canada	120	123	131	127	130	130	135
Europe	101	103	108	112	106	101	114
European Economic Community [3]	105	111	120	127	113	110	129
European Free Trade Association [4]	90	86	83	83	88	77	81
Australia and New Zealand	149	166	175	154	179	188	180
Less industrialized countries [5]	147	163	177	171	176	177	183
Latin America [6]	119	123	126	124	125	128	127
Asia [7]	149	165	180	174	178	180	189
Communist Europe [8]	138	142	151	151	152	150	151
World	129	135	143	142	143	142	147
PROCESSING INDUSTRIES							
Base metals:							
Non-Communist world	134	148	150	153	155	145	145
Industrialized countries [2]	133	148	149	153	155	143	144
United States and Canada	122	132	126	131	133	122	117
Europe	130	142	146	151	152	136	144
European Economic Community [3]	133	148	151	157	159	144	147
European Free Trade Association [4]	117	123	124	131	129	110	127
Australia and New Zealand	136	143	150	144	149	153	155
Less industrialized countries [5]	139	157	160	154	155	164	167
Latin America [6]	140	164	168	154	163	178	178
Asia [7]	139	151	150	157	147	145	154
Communist Europe [8]	147	155	165	165	165	165	166
World	138	150	154	157	158	151	152

See footnotes at end of table.

Table 1.—United Nations indexes of world [1] mineral industry production—Continued

(1963 = 100)

Industry sector and geographic area	1968	1969	1970	1970 by quarters			
				1st	2d	3d	4th
PROCESSING INDUSTRIES—Continued							
Nonmetallic mineral products:							
Non-Communist world	131	141	144	129	149	151	148
Industrialized countries [2]	130	139	141	125	145	148	144
United States and Canada	124	132	128	120	132	134	127
Europe	129	137	142	119	149	152	150
European Economic Community [3]	125	133	140	111	148	153	147
European Free Trade Association [4]	130	136	135	123	140	135	140
Australia and New Zealand	132	147	151	140	153	158	151
Less industrialized countries [5]	143	157	172	161	177	173	178
Latin America [6]	144	152	166	155	166	168	178
Asia [7]	141	163	181	167	188	185	183
Communist Europe [8]	153	164	182	180	184	180	185
World	140	150	159	149	163	162	162
Chemicals, petroleum and coal products:							
Non-Communist world	154	168	178	176	180	176	182
Industrialized countries [2]	155	169	179	177	180	176	182
United States and Canada	146	157	158	158	160	157	159
Europe	161	178	194	192	197	188	199
European Economic Community [3]	166	184	201	201	204	196	204
European Free Trade Association [4]	145	159	171	167	175	163	176
Australia and New Zealand	147	159	174	159	176	177	184
Less industrialized countries [5]	147	160	174	170	171	177	179
Latin America [6]	146	159	176	NA	NA	NA	NA
Asia [7]	147	160	172	165	167	173	182
Communist Europe [8]	177	199	212	203	209	211	225
World	159	175	185	182	186	183	191
OVERALL INDUSTRIAL PRODUCTION							
Non-Communist world	135	145	150	148	151	146	152
Industrialized countries [2]	134	144	148	147	150	143	150
United States and Canada	133	139	136	138	138	134	133
Europe	128	139	146	144	149	137	154
European Economic Community [3]	128	141	150	148	152	140	158
European Free Trade Association [4]	123	129	133	132	135	123	140
Australia and New Zealand	136	146	154	145	154	156	160
Less industrialized countries [5]	142	155	165	159	165	166	170
Latin America [6]	136	145	154	NA	NA	NA	NA
Asia [7]	144	158	169	165	167	169	176
Communist Europe [8]	151	162	177	177	178	173	179
World	140	150	157	156	159	153	160

NA Not available.

[1] Excludes a number of countries of the Near East and Africa as well as mainland China, North Korea, and North Vietnam.

[2] All countries having a per capita value added in manufacturing in 1958 equivalent to US$125 or more.

[3] Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands.

[4] Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom.

[5] Countries having a per capita value added in manufacturing in 1958 of less than US$125.

[6] Central and South America and the Caribbean Islands.

[7] Afghanistan, Brunei, Burma, Ceylon, Hong Kong, India, Indonesia, Iran, South Korea, Malaysia (excluding Sabah), Mongolia, Pakistan, Philippines, Singapore, Taiwan, Thailand, and South Vietnam.

[8] Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.

Source: United Nations. Monthly Bulletin of Statistics. August 1971, pp. x–xxiii.

Table 2.—World production [1] of major mineral commodities

Commodity		1968	1969	1970 p
METALS				
Aluminum:				
Bauxite	thousand metric tons	46,001	52,658	57,968
Alumina	do.	17,251	19,506	20,865
Unalloyed ingot metal	do.	8,019	9,008	9,672
Antimony	do.	61	66	66
Arsenic, white [2]	do.	61	50	51
Beryl	metric tons	6,555	7,996	7,449
Bismuth [2]	do.	3,770	3,838	3,849
Cadmium	do.	15,016	17,533	15,987
Chromite	thousand metric tons	4,937	5,349	5,949
Cobalt:				
Mine [2]	metric tons	19,231	19,631	23,623
Refined [2]	do.	17,139	17,800	21,981
Columbium-tantalum concentrates [2 3]	do.	10,821	15,675	19,912
Copper:				
Mine	thousand metric tons	5,114	5,628	5,950
Smelter	do.	5,492	6,004	6,227
Gold	thousand troy ounces	46,165	46,526	47,356
Iron and steel:				
Iron ore	thousand metric tons	679,247	718,856	766,689
Pig iron and blast furnace ferroalloys	do.	382,386	414,200	434,679
Electric furnace ferroalloys	do.	5,691	6,149	6,425
Crude steel	do.	529,495	573,826	593,739
Lead:				
Mine	do.	3,012	3,238	3,405
Smelter	do.	2,949	3,232	3,294
Magnesium	do.	193	201	221
Manganese ore	do.	16,899	17,414	18,497
Mercury	thousand 76-pound flasks	260	290	284
Molybdenum	metric tons	66,582	73,710	83,289
Nickel	thousand metric tons	497	483	622
Platinum-group metals	thousand troy ounces	3,394	3,431	4,216
Selenium [4]	metric tons	883	1,265	1,084
Silver	thousand troy ounces	275,264	290,469	301,745
Tellurium [2]	metric tons	117	179	162
Tin:				
Mine [2]	thousand long tons	228	224	227
Smelter	do.	230	223	222
Titanium concentrates:				
Ilmenite [3]	thousand metric tons	2,923	3,213	3,576
Rutile [2 3]	do.	302	396	417
Tungsten, mine output, metal content	metric tons	31,017	32,091	33,574
Uranium oxide (U_3O_8) [3]	do.	20,871	20,915	21,504
Vanadium [3]	do.	11,237	12,539	13,938
Zinc:				
Mine	thousand metric tons	4,975	5,345	5,499
Smelter	do.	4,626	4,964	4,905
NONMETALS				
Asbestos	do.	2,987	3,301	3,474
Barite	do.	3,517	3,959	3,924
Cement, hydraulic	do.	515,347	542,332	571,348
Diamond:				
Gem	thousand carats	10,674	11,773	13,712
Industrial	do.	25,879	29,090	28,643
Diatomite	thousand metric tons	1,603	1,618	1,615
Feldspar	do.	2,244	2,383	2,336
Fluorspar	do.	3,644	3,868	4,170
Graphite [1]	do.	437	375	380
Gypsum	do.	49,428	51,242	50,426
Magnesite [2]	do.	10,725	11,491	12,547
Mica	do.	157	159	158
Nitrogen fertilizers, contained nitrogen [5]	do.	25,844	28,710	30,600
Phosphate rock	thousand metric tons	84,001	81,709	85,208
Potash (marketable), K_2O equivalent	do.	16,209	17,064	18,586
Pumice [3]	do.	13,757	14,768	14,549
Pyrites, including cupreous	do.	21,095	20,931	22,162
Salt	do.	126,255	135,764	142,637
Strontium minerals [3]	metric tons	12,839	27,797	35,660
Sulfur, elemental:				
Native	thousand metric tons	12,250	12,632	12,956
Byproduct	do.	7,542	8,473	9,117
Talc, soapstone, and pyrophyllite	do.	4,351	4,660	4,813
Vermiculite [3]	do.	352	423	392

Table 2.—World production [1] of major mineral commodities—Continued

Commodity	1968	1969	1970 [p]
MINERAL FUELS AND RELATED MATERIALS			
Coal:			
Anthracite—million metric tons	182	180	183
Bituminous—do	1,594	1,619	1,658
Lignite—do	734	760	787
Mixed grades—do	290	318	355
Total—do	2,800	2,877	2,983
Coke:			
Metallurgical—thousand metric tons	315,406	332,031	346,842
Other types—do	28,386	27,081	25,058
Fuel briquets—do	143	144	104
Gas, natural, marketed—billion cubic feet	31,334	34,380	37,907
Peat—thousand metric tons	188	185	197
Petroleum, crude—million barrels	14,093	15,214	16,690

[p] Preliminary.

[1] Incorporates numerous revisions from world production tables and country production tables appearing in Volumes I and III, respectively, of the Minerals Yearbook as well as in the corresponding table in previous editions of this chapter.

[2] U.S. production data withheld to avoid disclosing individual company confidential data.

[3] Excludes production from Communist countries: Albania, Bulgaria, mainland China, Cuba, Czechoslovakia, East Germany, Hungary, Mongolia, North Korea, North Vietnam, Poland, Romania, U.S.S.R., and Yugoslavia.

[4] Excludes production from countries listed in footnote 2 except for Yugoslavia.

[5] Years ending June 30 of that stated.

Table 3.—Approximate percentage distribution of world mineral commodity production, by major areas in 1970 [1]

Commodity	Western Hemisphere			Eastern Hemisphere							World	
				Europe			Near East and Asia					
	North and Central America [2]	South America	Total	Non-Communist [3]	Communist [4]	Africa	Non-Communist	Communist [5]	Oceania	Total	Non-Communist	Communist [2]
METALS												
Aluminum:												
Alumina	44.9	6.8	51.7	13.0	13.0	2.9	8.0	1.2	10.2	48.3	85.8	14.2
Bauxite	27.2	17.9	45.1	13.1	12.3	5.9	6.5	.9	16.2	54.9	86.8	13.2
Ingot	47.6	1.3	48.9	20.8	15.4	1.7	9.8	1.3	2.1	51.1	83.3	16.7
Antimony	9.5	18.2	27.7	6.1	10.9	28.5	8.1	17.6	1.1	72.3	71.5	28.5
Arsenic, white	[6] 13.8	2.1	15.9	60.4	14.0	8.0	1.7	(7)	--	84.1	86.0	14.0
Beryl	(8)	49.7	49.7	.2	16.8	15.6	17.7	--	(8)	50.3	83.2	16.8
Bismuth	[6] 21.0	34.3	55.3	4.4	3.2	.1	25.0	6.2	5.8	44.7	90.6	9.4
Cadmium	33.4	1.2	34.6	22.7	19.3	3.6	15.3	.7	3.8	65.4	80.0	20.0
Chromite	(7)	.5	.5	3.6	37.1	33.1	25.7	--	--	99.5	62.9	37.1
Cobalt	7.2	--	7.2	15.7	7.0	70.1	(7)	--	--	92.8	93.0	7.0
Columbium-tantalum [9]	23.8	66.7	90.5	(8)	XX	9.2	.3	XX	--	9.5	100.0	XX
Copper:												
Mine	37.9	15.4	53.3	3.2	12.2	21.1	5.8	1.9	2.5	46.7	85.9	14.1
Smelter	32.7	13.5	46.2	6.0	11.9	20.4	11.9	1.8	1.8	53.8	86.3	13.7
Gold	9.2	1.2	10.4	.4	13.8	71.1	2.3	.4	1.6	89.6	85.8	14.2
Iron and steel:												
Iron ore	18.8	11.0	29.8	17.2	26.8	7.3	5.4	6.8	6.7	70.2	66.4	33.6
Pig iron	21.6	1.5	23.1	25.8	25.3	1.2	17.5	5.7	1.4	76.9	69.0	31.0
Ferroalloys	36.7	1.8	38.5	27.7	4.5	--	29.3	--	--	61.5	95.5	4.5
Steel ingots and castings	22.7	1.6	24.3	27.1	26.1	1.0	17.1	3.3	1.1	75.7	70.6	29.4
Lead:												
Mine	31.5	7.4	38.9	13.7	19.9	5.7	3.6	5.0	13.2	61.1	75.1	24.9
Smelter	28.5	4.0	32.5	20.3	20.5	4.6	6.8	4.6	10.7	67.5	74.9	25.1
Magnesium	50.0	--	50.0	22.2	22.6	--	4.7	.5	--	50.0	76.9	23.1
Manganese ore	1.5	10.6	12.1	.5	38.9	27.7	10.8	5.4	4.6	87.9	55.7	44.3
Mercury	28.9	1.3	30.2	38.4	17.6	(8)	6.8	7.0	--	69.8	75.4	24.6
Molybdenum	90.1	9.0	99.1	.3	--	(7)	.6	--	--	.9	100.0	--
Nickel	52.5	.4	52.9	2.2	17.9	2.6	2.9	--	21.5	47.1	82.1	17.9
Platinum-group metals	11.4	.6	12.0	--	52.2	35.6	.2	--	--	88.0	47.8	52.2
Selenium [10]	69.0	.6	69.6	11.3	XX	--	19.0	XX	.1	30.4	100.0	XX
Silver	45.5	16.5	62.0	6.4	14.9	2.7	4.9	.4	8.7	38.0	84.7	15.3
Tellurium [9]	60.7	17.3	78.0	--	XX	--	22.0	XX	--	22.0	100.0	XX
Tin:												
Mine	[6] .5	14.6	15.1	1.1	12.4	8.3	50.3	8.8	4.0	84.9	78.8	21.2
Smelter	(8)	1.4	1.4	16.3	12.7	4.4	53.9	9.0	2.3	98.6	78.3	21.7
Titanium:												
Ilmenite [9]	43.4	(7)	43.4	21.5	XX	--	10.1	XX	25.0	56.6	100.0	XX
Rutile [9]	--	--	--	--	XX	10.6	1.2	XX	88.2	100.0	100.0	XX
Tungsten	15.8	11.7	27.5	6.4	20.0	.9	11.2	30.3	3.7	72.5	49.7	50.3
Uranium oxide (U_3O_8) [9]	69.9	.2	70.1	7.9	XX	20.6	--	XX	1.4	29.9	100.0	XX
Vanadium [9]	38.8	--	38.8	16.0	XX	45.2	--	XX	--	61.2	100.0	XX

Zinc:												
Mine	36.9	7.6	44.5	13.3	17.3	4.7	7.2	4.2	8.8	55.5	78.5	21.5
Smelter	26.3	2.3	28.6	22.6	22.1	3.0	14.5	3.9	5.3	71.4	74.0	26.0
NONMETALS												
Asbestos	46.7	.4	47.1	4.2	30.1	11.7	1.7	5.1	.1	52.9	64.8	35.2
Barite	34.0	4.8	38.8	29.8	13.1	3.5	6.7	7.1	1.0	61.2	79.8	20.2
Cement, hydraulic	15.2	4.1	19.3	31.4	23.9	3.1	18.9	2.5	.9	80.7	73.6	26.4
Diamond:												
Gem	--	2.1	2.1	--	12.0	85.8	.1	--	--	97.9	88.0	12.0
Industrial	--	2.0	2.0	--	22.0	76.0	(8)	--	--	98.0	78.0	22.0
Diatomite	35.3	1.9	37.2	38.4	23.0	.9	.2	--	.3	62.8	77.0	23.0
Feldspar	32.2	2.1	34.3	46.5	11.9	.9	6.2	--	.2	65.7	88.1	11.9
Fluorspar	32.0	1.6	33.6	29.1	14.0	5.1	9.0	9.2	--	66.4	76.8	23.2
Graphite	14.7	.1	14.8	13.8	19.9	5.0	18.7	27.8	--	85.2	52.3	47.7
Gypsum	32.0	2.5	34.5	40.4	12.6	1.9	7.8	1.2	1.6	65.5	86.2	13.8
Magnesite	--	1.9	1.9	22.6	48.7	.7	5.1	21.0	--	98.1	30.3	69.7
Mica, including scrap	68.8	1.7	70.5	4.4	--	5.6	19.5	--	--	29.5	100.0	--
Nitrogen fertilizers, contained nitrogen	29.5	.7	30.2	26.3	24.8	1.1	12.9	4.1	.6	69.8	71.1	28.9
Phosphate rock	41.5	.2	41.7	(8)	24.1	23.7	4.2	3.0	3.3	58.3	72.9	27.1
Potash K_2O equivalent (marketable)	30.1	--	30.1	29.0	36.7	1.3	2.9	--	--	69.9	63.3	36.7
Pumice	20.9	1.2	22.1	77.7	--	.1	--	--	.1	77.9	100.0	--
Pyrites, including cupreous	1.4	--	1.4	37.4	27.3	4.4	18.3	10.6	.6	98.6	62.1	37.9
Salt	36.0	2.9	38.9	24.5	15.0	1.5	7.1	11.8	1.2	61.1	73.2	26.8
Strontium minerals [9]	74.4	--	74.4	24.8	XX	--	.8	XX	--	25.6	100.0	XX
Sulfur:												
Native	65.8	1.4	67.2	.4	29.5	--	2.0	.9	--	32.8	69.6	30.4
Byproduct, elemental	65.4	.1	65.5	24.6	6.6	.1	1.8	1.4	--	34.5	92.0	8.0
Talc, soapstone, and pyrophyllite	20.8	.7	21.5	15.4	9.1	.3	47.5	4.8	1.4	78.5	86.1	13.9
Vermiculite [9]	66.1	2.1	68.2	--	XX	31.6	.2	XX	--	31.8	100.0	XX
MINERAL FUELS AND RELATED MATERIALS												
Coal, all grades including lignite	19.2	.3	19.5	16.1	41.7	1.9	4.9	13.3	2.6	80.5	45.0	55.0
Coke:												
Metallurgical	19.2	.7	19.9	27.1	30.7	1.2	13.6	6.0	1.5	80.1	63.3	36.7
Other types	--	.8	.8	21.4	38.1	.4	36.3	--	3.0	99.2	61.9	38.1
Fuel briquets	--	--	--	20.2	65.9	--	12.5	--	1.4	100.0	34.1	65.9
Gas, natural (marketed)	65.6	1.8	67.4	7.2	22.0	.3	3.0	--	.1	32.6	78.0	22.0
Peat	.4	--	.4	4.6	94.9	--	.1	--	--	99.6	5.1	94.9
Petroleum, crude	25.1	10.3	35.4	.8	16.3	13.1	33.1	.9	.4	64.6	82.8	17.2

XX Not applicable.

[1] Data presented in this table have been calculated from production figures that include additions and revisions to all data appearing elsewhere in 1970 Minerals Yearbook. Data revised through Sept. 30, 1971.

[2] Includes Cuba.

[3] Includes Yugoslavia.

[4] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.

[5] Includes mainland China, Mongolia, North Korea, and North Vietnam.

[6] U.S. data withheld to avoid disclosing individual company data and not included in total upon which percentages have been calculated.

[7] Quantity of production not known. No estimate included in total.

[8] Less than .05 percent.

[9] Excludes production from Communist countries: Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, mainland China, Mongolia, North Korea, North Vietnam, Poland, Romania, U.S.S.R. and Yugoslavia.

[10] Excludes production from Communist countries other than Yugoslavia.

Table 4.—Geographic distribution of world crude mineral production value

Country	Value of production (million 1968 U.S. dollars)			Country's share of total [1] (percent)			Country's rank among world producers		
	1950	1963	1968	1950	1963	1968	1950	1963	1968
United States	14,165	17,883	20,232	38.06	26.66	25.97	1	1	1
U.S.S.R.	4,207	11,567	14,258	11.34	17.25	18.30	2	2	2
Canada	989	2,469	3,599	2.66	3.67	4.62	6	7	3
China, mainland	406	3,447	3,263	1.09	5.13	4.19	17	4	4
Venezuela	1,967	3,167	3,116	5.28	4.72	4.00	4	5	5
Germany, West	1,788	3,508	2,479	4.80	5.23	3.18	5	3	6
United Kingdom	2,103	3,024	2,073	5.65	4.50	2.66	3	6	7
Libya	--	419	1,992	--	.63	2.55	--	23	8
Saudi Arabia [2]	698	1,224	1,865	1.87	1.82	2.39	10	12	9
South Africa, Republic of	750	1,533	1,826	2.01	2.28	2.34	11	8	10
Iran	847	984	1,722	2.27	1.46	2.21	8	13	11
Kuwait [2]	438	1,481	1,713	1.18	2.20	2.20	16	9	12
Poland	783	1,345	1,268	2.10	[3] 2.01	1.63	9	10	13
France	907	1,328	1,103	2.44	1.98	1.42	7	11	14
Iraq	173	826	951	.46	1.24	1.22	26	15	15
Japan	466	774	884	1.25	1.15	1.13	14	16	16
Australia	386	517	881	1.04	.78	1.13	18	21	17
Chile	347	561	847	.93	.85	1.09	19	19	18
Mexico	513	644	823	1.38	.96	1.06	13	18	19
Algeria	30	407	804	.08	.61	1.03	52	24	20
Germany, East	227	942	790	.61	1.40	1.01	22	14	21
India	462	665	678	1.24	.98	.87	15	17	22
Zambia	176	360	678	.47	.54	.87	25	27	23
Indonesia	270	482	569	.72	.73	.73	20	22	24
Peru	131	339	497	.35	.51	.64	32	29	25
Czechoslovakia	232	554	462	.62	.82	.59	21	20	26
Romania	123	377	446	.33	.57	.57	33	26	27
Congo (Kinshasa)	198	255	426	.53	.38	.55	23	34	28
Abu Dhabi	--	45	342	--	.07	.44	--	64	29
Brazil	61	275	337	.16	.41	.43	46	31	30
Argentina	97	291	321	.26	.44	.41	37	30	31
Spain	192	268	311	.52	.40	.40	24	32	32
Italy	83	201	301	.22	.30	.39	38	38	33
Korea, North	15	177	288	.04	.26	.37	64	40	34
Yugoslavia	107	231	272	.29	.35	.35	36	36	35
Malaysia	154	230	253	.41	.35	.32	27	37	36
Qatar	43	155	243	.11	.23	.31	49	43	37
Sweden	147	235	228	.39	.35	.29	30	35	38
Netherlands	151	346	222	.40	.52	.28	29	28	39
Belgium	534	392	207	1.44	.59	.27	12	25	40
All others [4]	1,858	3,114	4,338	5.00	4.67	5.59	XX	XX	XX
Total	37,224	67,042	77,908	100.00	100.00	100.00	XX	XX	XX

XX Not applicable.
[1] Percentages as reported in source; some differ slightly from percentages calculated from corresponding value data in this table due to rounding of value data.
[2] Includes ½ share of value of production in Kuwait–Saudi Arabia Neutral Zone.
[3] Figure adjusted from that reported in source due to evident error in source.
[4] All figures derived by difference between sum of individually listed countries and reported total; for this reason percentages given may not be calculable from listed values.

Source: Annales des Mines, No. 1, January 1971, pp. 24–25.

Table 5.—Commodity distribution of world crude mineral production value

Commodity	Value of production (million 1968 U.S. dollars)			Commodity's share of total [1] (percent)			Commodity's rank among listed commodities		
	1950	1963	1968	1950	1963	1968	1950	1963	1968
Petroleum, crude	13,310	24,283	31,392	[2] 35.76	36.21	40.29	2	1	1
Coal, anthracite and bituminous	13,884	19,453	16,317	[2] 37.30	29.02	20.94	1	2	2
Gas, natural	657	3,678	5,053	1.76	5.47	6.49	6	4	3
Copper	1,376	2,809	4,965	3.69	4.18	6.37	4	5	4
Iron ore	1,670	4,067	4,600	4.48	6.05	5.90	3	3	5
Coal, lignite	500	2,184	1,923	1.35	3.25	2.47	10	6	6
Gold	1,374	1,743	1,619	3.69	2.60	2.08	5	7	7
Natural gas liquids	584	1,041	1,476	1.57	1.54	1.90	7	8	8
Salt	255	623	733	.69	.92	.94	13	10	9
Sulfur (excluding pyrite)	150	263	703	.40	.40	.90	17	22	10
Zinc	529	483	703	1.43	.73	.90	9	12	11
Phosphates	180	467	690	.48	.70	.89	16	15	12
Nickel	124	462	661	.33	.70	.85	19	16	13
Lead	557	469	632	1.50	.71	.81	8	14	14
Tin	450	481	618	1.20	.73	.79	11	13	15
Silver	183	359	591	.49	.54	.76	15	19	16
Diamond	124	327	560	.33	.49	.72	20	20	17
Potash	218	548	558	.59	.82	.72	14	11	18
Asbestos	138	404	517	.37	.61	.66	18	17	19
Uranium	NA	761	493	XX	1.13	.63	XX	9	20
Platinum	46	96	391	.12	.14	.50	28	26	21
Bauxite	73	264	374	.20	.40	.48	24	21	22
Manganese	276	371	351	.75	.55	.45	12	18	23
Kaolin	81	177	242	.21	.27	.31	22	24	24
Molybdenum	41	145	233	.11	.22	.30	31	25	25
Pyrite	59	197	228	.16	.30	.29	26	23	26
Other [3]	385	887	1,285	1.04	1.32	1.66	XX	XX	XX
Total	37,224	67,042	77,908	100.00	100.00	100.00	XX	XX	XX

NA Not available. XX Not applicable.

[1] Percentages as reported in source; some differ slightly from percentages calculated from corresponding value data in this table due to rounding of value data.

[2] Figure adjusted from that reported in source due to evident error in source.

[3] Commodities included are as follows, in descending order of value in 1968: tungsten, mercury, borates, talc, fluorspar, magnesite, chromite, bentonite, barite, ilmenite, natural sodium carbonate, vanadium, mica, cobalt, antimony, natural sodium sulfate, rutile, feldspar, natural nitrates, natural asphalt, graphite, zircon, columbite-tantalite, kyanite, asphaltic limestone, cryolite, and beryl. Percentage figures are derived by difference between sum of individually listed commodities and 100.00 percent; for this reason percentages given may not be calculable from listed values.

Source: Annales des Mines, No. 1, January 1971, p. 14.

Table 6.—Value of world export trade in major mineral commodity groups [1]

(Million U.S. dollars)

Commodity group [1]	1965	1966	1967	1968 [r]	1969
Metals:					
All ores, concentrates and scrap	4,580	4,770	5,050	5,590	6,410
Iron and steel	9,700	9,670	10,330	11,430	13,690
Nonferrous metals	6,690	8,020	8,030	9,470	10,890
Total	20,970	22,460	23,410	26,490	30,990
Nonmetals (crude only)	1,760	1,900	2,010	2,180	2,260
Mineral fuels	17,920	18,890	20,660	23,120	24,930
Grand total	40,650	43,250	46,080	51,790	58,180
All commodities	186,390	203,400	214,190	239,140	272,710

[r] Revised.
[1] Data presented are for selected major commodity groups of the Standard International Trade Classification—Revised (SITC-R) and as such exclude some mineral commodities classified in that data array together with other (nonmineral) commodities. SITC-R categories included are as follows: ores, concentrates, and scrap—SITC Division 28; iron and steel—SITC Division 67; nonferrous metals—SITC Division 68; nonmetals (crude only)—SITC Division 27; mineral fuels—SITC Section 3. Major items not included are the metals, metalloids, and metal oxides of SITC Division 52; manufactured fertilizers of SITC Division 56; and nonmetallic mineral manufactures of SITC Groups 661, 663, and 667.

Table 7.—Distribution of total value of export trade in major mineral commodity groups, by group [1]

(Percent)

Commodity group [1]	1965	1966	1967	1968 [r]	1969
Metals:					
All ores, concentrates and scrap	11.3	11.0	11.0	10.8	11.0
Iron and steel	23.9	22.4	22.4	22.1	23.5
Nonferrous metals	16.4	18.5	17.4	18.3	18.7
Total	51.6	51.9	50.8	51.2	53.2
Nonmetals (crude only)	4.3	4.4	4.4	4.2	3.9
Mineral fuels	44.1	43.7	44.8	44.6	42.9
Grand total	100.0	100.0	100.0	100.0	100.0

[r] Revised.
[1] For detailed definition of groups, see footnote 1, table 6.

Table 8.—Growth of value of export trade in major mineral commodity groups [1]

(Percent increase over previous year)

Commodity group [1]	1965	1966	1967	1968 [r]	1969
Metals:					
All ores, concentrates and scrap	4.8	4.1	5.9	10.7	14.7
Iron and steel	12.3	−.3	6.8	10.6	19.8
Nonferrous metals	18.8	19.9	.1	17.9	15.0
All metals	12.5	7.1	4.2	13.2	17.0
Nonmetals (crude only)	15.0	8.0	5.8	8.5	3.7
Mineral fuels	5.4	5.4	9.4	11.9	7.8
All major mineral commodity groups	9.3	6.4	6.5	12.4	12.3
All commodity groups	8.3	9.1	5.3	11.6	14.0

[r] Revised.
[1] For detailed definitions of groups, see footnote 1, table 6.

Table 9.—Significance of trade in major mineral commodity groups [1] to total trade of various world areas, 1969

Area and country [2]	Value, million U.S. dollars				Major mineral commodities' share of total (percent)	
	Major mineral commodity groups [1]		All commodities			
	Exports from	Exports to	Exports from	Exports to	Exports from	Exports to
Northern North America:						
Canada	3,535	1,674	13,750	12,420	25.7	13.5
United States	3,985	7,465	37,460	35,320	10.6	21.1
Total	7,520	9,139	51,210	47,740	14.7	19.1
Latin America	[3] 5,285	1,984	13,510	13,290	[4] 39.1	14.9
Europe:						
Non-Communist:						
EEC	11,805	17,840	75,690	72,320	15.6	24.7
EFTA	4,305	8,250	35,620	38,910	12.1	21.2
Other	1,070	2,440	7,410	12,320	14.4	19.8
Subtotal	17,180	28,530	118,720	123,550	14.5	23.1
Communist	6,375	4,770	27,500	25,240	23.2	18.9
Total	23,555	33,300	146,220	148,790	16.1	22.4
Africa:						
Republic of South Africa	[5] 98	310	2,140	2,950	[4] 4.6	10.5
Other	[6] 5,900	1,327	11,470	10,040	[4] 51.4	13.2
Total	[7] 5,998	1,637	13,610	12,990	[4] 44.1	12.6
Near East	[5] 7,660	912	9,380	7,090	[4] 81.7	12.9
South Asia and Far East:						
Non-Communist:						
Japan	[8] 2,395	5,180	15,990	12,500	[4] 15.0	41.4
Other	[3] 2,140	2,607	12,940	17,470	[4] 16.5	14.9
Subtotal	[7] 4,535	7,787	28,930	29,970	[4] 15.7	26.0
Communist	[8] 126	562	2,250	2,550	[4] 5.6	22.0
Total	[7] 4,661	8,349	31,180	32,520	[4] 14.9	25.7

Table 9.—Significance of trade in major mineral commodity groups [1] to total trade of various world areas, 1969—Continued

Area and country [2]	Value, million U.S. dollars				Major mineral commodities' share of total (percent)	
	Major mineral commodity groups [1]		All commodities			
	Exports from	Exports to	Exports from	Exports to	Exports from	Exports to
Australia and New Zealand	[8] 590	609	5,110	4,500	[4] 11.5	13.5
Rest of world	[9] 1,320	1,306	2,490	3,790	[4] 53.0	34.5
Not reported	[10] 1,591	944	--	2,000	([11])	47.2
Grand total	58,180	58,180	272,710	272,710	21.3	21.3

[1] For detailed definitions of groups, see footnote 1, table 6.

[2] Regional groupings generally conform to United Nations practice; modifications and special aspects of classification scheme are as follows: (1) Latin America includes Mexico, Central America, and South America, but excludes Caribbean Islands; (2) EEC consists of Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands; (3) EFTA consists of Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom; (4) other non-Communist Europe consists of Finland, Greece, Iceland, Ireland, and Spain, as well as Yugoslavia (a Communist country); (5) Communist Europe includes Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and the U.S.S.R.; (6) Other Africa corresponds to the United Nations category "Developing Africa;" (7) Near East corresponds to the United Nations category "Asian Middle East;" (8) Other non-Communist South Asia and Far East corresponds to the United Nations category "Other Asia;" (9) Communist Far East consists of China (mainland), North Korea, Mongolia, and North Vietnam; (10) Rest of the world is taken directly from source and reportedly consists mainly of Caribbean and Pacific Islands; (11) Not reported is derived by subtracting all listed figures from reported totals.

[3] Partial figure, value of nonmetals excluded, but presumably included under "Not reported."

[4] Percentage based on partial figure; see footnote to entry in "Exports from" value column.

[5] Partial figure, value of mineral fuels only; totals for other commodity groups presumably included under "Not reported."

[6] Partial figure; value of iron and steel excluded, but presumably included under "Not reported."

[7] Partial figure; see exclusions as indicated by footnotes to regional detail above.

[8] Partial figure; value of metal ores, concentrates, and scrap as well as nonmetals excluded but presumably included under "Not reported."

[9] Partial figure; value of iron and steel, nonferrous metals, and nonmetals excluded but presumably included under "Not reported."

[10] Direct arithmetic sum of the differences between world totals and individual detailed figures for each major commodity reported in source publications.

[11] Not calculable, owing to the fact that a considerable part of total dollar value of major mineral commodity exports was not distributed by specific areas and thus appears as a part of the not reported total; but in the case of total commodity trade, the total dollar value was fully distributed.

Table 10.—Export origins and destinations for major mineral commodity group[1] shipments, by value, in 1969

(Million U.S. dollars)

Area and country[2]	Exports from					Exports to				
	Metal ores, concentrates and scrap	Iron and steel	Nonferrous metals	Nonmetals	Mineral fuels	Metal ores, concentrates and scrap	Iron and steel	Nonferrous metals	Nonmetals	Mineral fuels
Northern North America:										
Canada	1,060	280	1,140	315	740	180	460	190	74	770
United States	710	970	860	315	1,130	940	1,810	1,620	255	2,840
Total	1,770	1,250	2,000	630	1,870	1,120	2,270	1,810	329	3,610
Latin America	940	105	1,190	(3)	3,050	47	740	320	77	800
Europe:										
Non-Communist:										
EEC	590	5,690	2,190	415	2,920	1,990	3,900	4,060	750	7,140
EFTA	415	1,730	1,520	265	640	860	1,550	2,000	330	3,510
Other[4]	145	190	310		160	170	760	310	110	1,090
Subtotal	1,150	7,610	4,020	680	3,720	3,020	6,210	6,370	1,190	11,740
Communist	620	1,950	770	325	2,710	590	1,910	550	280	1,440
Total[4]	1,770	9,560	4,790	1,005	6,430	3,610	8,120	6,920	1,470	13,180
Africa:										
Republic of South Africa	(3)	(3)	(3)	(3)	98	2	48	67	8	185
Other	465	(3)	1,720	205	3,510	14	510	98	35	670
Total[4]	465	(3)	1,720	205	3,608	16	558	165	43	855
Near East	(3)	(3)	(3)	(3)	7,660	3	395	95	24	395
South Asia and Far East:										
Non-Communist:										
Japan	(3)	2,160	185	(3)	50	1,470	165	840	165	2,540
Other	465	165	440	(3)	1,070	84	870	270	73	1,310
Subtotal[4]	465	2,325	625	(3)	1,120	1,554	1,035	1,110	238	3,850
Communist	(3)	68	41	(3)	17	17	270	160	17	98
Total	465	2,393	666	(3)	1,137	1,571	1,305	1,270	255	3,948
Australia and New Zealand	(3)	145	245	(3)	200	5	160	59	45	340
Rest of world	350	(3)	(3)	(3)	970	6	96	17	17	1,170
Not reported[4]	650	237	279	420	5	32	46	234	--	632
Grand total	6,410	13,690	10,890	2,260	24,930	6,410	13,690	10,890	2,260	24,930

[1] For detailed definitions of groups, see footnote 1, table 6.
[2] For detailed definitions of areas listed below, see footnote 2, table 9.
[3] Not listed separately for this area, presumably included under "Not reported."
[4] Not reported in source but derived from data therein.

Table 11.—Direction of trade in major mineral commodities [1] in 1969

(Million U.S. dollars)

Sources [2]	Destinations [2]									
	Northern North America			Latin America	Non-Communist Europe				Communist Europe	Near East
	United States	Canada	Total [3]		EEC	EFTA	Other [3]	Total [4]		
Northern North America:										
United States	XX	835	835	489	965	387	148	1,500	31	29
Canada	2,110	XX	2,110	74	344	534	47	925	6	10
Total [3]	2,110	835	2,945	563	1,309	921	195	2,425	37	39
Latin America [5]	1,633	379	2,012	449	833	566	81	1,480	51	4
Europe:										
Non-Communist:										
EEC	828	63	891	212	6,490	2,014	521	9,025	396	193
EFTA [6]	359	71	430	79	1,485	1,271	324	3,080	208	88
Other [3]	81	4	85	16	455	285	65	805	119	15
Subtotal	1,268	138	1,406	307	8,430	3,570	910	12,910	723	296
Communist	34	11	45	165	703	477	487	1,667	3,690	64
Total [3]	1,302	149	1,451	472	9,133	4,047	1,397	14,577	4,413	360
Near East [7]	215	62	277	135	2,330	1,170	380	3,880	2	340
Africa:										
Republic of South Africa [7]	1	--	1	--	3	--	1	4	--	--
Other [8]	238	26	264	47	3,545	1,007	228	4,780	50	5
Total [3]	239	26	265	47	3,548	1,007	229	4,784	50	5
Far East and South Asia:										
Non-Communist:										
Japan [5 9]	794	58	852	200	143	42	75	260	57	93
Other	273	11	284	21	114	48	16	178	51	38
Subtotal [3]	1,067	69	1,136	221	257	90	91	438	108	131
Communist [5 9]	--	--	--	4	18	5	1	24	52	1
Total [3]	1,067	69	1,136	225	275	95	92	462	160	132
Australia and New Zealand [5 9]	39	3	42	5	33	102	11	146	1	4
Rest of world [10]	650	137	787	80	47	137	11	195	--	1
Grand total [4]	7,465	1,674	9,139	1,984	17,840	8,250	2,440	28,530	4,770	912

Sources [2]	Destinations [2]									
	Africa			Non-Communist Far East and South Asia			Communist Far East	Australia and New Zealand	Rest of world	Grand total [4]
	Republic of South Africa	Other	Total [3]	Japan	Other	Total [3]				
Northern North America:										
United States	19	56	75	680	272	952	--	37	35	3,985
Canada	26	3	29	285	50	335	2	39	6	3,535
Total [3]	45	59	104	965	322	1,287	2	76	41	7,520
Latin America [5]	--	12	12	344	14	358	4	1	911	5,285
Europe:										
Non-Communist:										
EEC	25	406	431	50	99	149	121	15	61	11,805
EFTA [6]	32	87	119	43	82	125	80	55	29	4,305
Other [3]	1	27	28	13	4	17	4	4	2	1,070
Subtotal	58	520	578	106	185	291	205	74	92	17,180
Communist	--	97	97	164	75	239	143	--	--	6,375
Total [3]	58	617	675	270	260	530	348	74	92	23,555
Near East [7]	150	290	440	1,680	560	2,240	--	210	67	7,660
Africa:										
Republic of South Africa [7]	XX	20	20	5	--	5	--	--	--	98
Other [8]	34	147	181	410	22	432	20	2	49	5,900
Total [3]	34	167	201	415	22	437	20	2	49	5,998
Far East and South Asia:										
Non-Communist:										
Japan [5 9]	14	77	91	XX	585	585	188	67	11	2,395
Other	--	19	19	716	690	1,406	1	104	12	2,140
Subtotal [3]	14	96	110	716	1,275	1,991	189	171	23	4,535
Communist [5 9]	--	4	4	22	20	42	NA	--	--	126
Total [3]	14	100	114	738	1,295	2,033	189	171	23	4,661

Table 11.—Direction of trade in major mineral commodities [1] in 1969—Continued

(Million U.S. dollars)

Sources [2]	Destinations [2]									
	Africa			Non-Communist Far East and South Asia			Communist Far East	Australia and New Zealand	Rest of world	Grand total [4]
	Republic of South Africa	Other	Total [3]	Japan	Other	Total [3]				
Australia and New Zealand [5] [9]	3	3	6	216	84	300	3	60	20	590
Rest of world [10]	1	23	24	62	33	95	--	2	87	1,320
Grand total [4]	310	1,327	1,637	5,180	2,607	7,787	562	609	1,306	58,180

NA Not available. XX Not applicable.

[1] For detailed listing of commodities included, see footnote 1, table 6. It should be noted that certain commodities excluded for specific areas indicated by footnotes 5 through 10 are presumably included in grand totals.

[2] For detailed definitions of areas listed, see footnote 2, table 9.

[3] Not reported in source; derived from data therein.

[4] As reported in source, detail may not add to listed figure.

[5] Excludes crude nonmetals.

[6] Excludes crude nonmetals; however, figures for crude nonmetals for this area are included with "Other Europe" on following line, and thus are included in subtotal for non-Communist Europe and total for Europe, as well as in "Grand total."

[7] Includes mineral fuels only.

[8] Excludes iron and steel.

[9] Excludes metal ores and scrap.

[10] Includes metal ores and scrap and mineral fuels only.

Table 12.—Iron ore consumption by selected major countries

(Million metric tons)

Countries	1968	1969	1970
European Economic Community:			
Belgium	18.6	19.4	18.7
France	41.7	43.7	45.4
Germany, West	42.9	47.7	47.2
Italy	e 9.9	10.0	10.2
Luxembourg	14.3	14.8	14.5
Netherlands	4.1	4.9	5.2
Total	131.5	140.5	141.2
European Free Trade Association:			
Austria	4.7	5.4	5.6
Norway [1]	r .8	.9	.9
Portugal	.2	.3	.3
Sweden	6.5	e 6.8	e 6.9
United Kingdom	31.0	30.4	32.0
Total	r 43.2	43.8	45.7
Other non-Communist Europe:			
Finland	1.5	1.7	1.6
Spain	5.6	6.8	e 7.6
Total	7.1	r 8.5	9.2
Communist Europe:			
Czechoslovakia e	13.1	13.2	13.2
Hungary	3.2	3.2	5.7
Poland	r 12.9	r 12.9	e 12.1
U.S.S.R. e	145.0	150.0	160.0
Yugoslavia	r 2.4	r 2.1	2.4
Total	r 176.6	r 181.4	193.4
Other:			
Japan	59.4	73.6	86.1
Turkey	r .9	1.0	e 1.2
United States	122.4	130.6	125.2
Total	182.7	205.2	212.5
Grand total	r 541.1	r 579.4	602.0

e Estimate. r Revised.
[1] Includes agglomerated products.

Source: United Nations. Quarterly Bulletin of Steel Statistics for Europe. V. 22, No. 3, 1971, except for estimates which were prepared by the U.S. Bureau of Mines from partial data in the source just cited.

Table 13.—Iron and steel scrap consumption by selected major countries

(Thousand metric tons)

Countries	1968	1969	1970
European Economic Community:			
Belgium [1 2]	2,752	3,266	3,487
France [3]	7,213	8,015	8,789
Germany, West [4]	21,671	23,479	23,684
Italy	11,827	11,623	e 12,273
Luxembourg	1,244	1,563	1,663
Netherlands	1,751	2,110	2,281
Total	46,458	50,056	52,177
European Free Trade Association:			
Austria [2 4]	1,326	1,525	1,551
Denmark [2]	503	527	435
Norway [3]	410	429	443
Portugal [3]	89	123	143
Sweden [1 3]	3,045	3,258	e 3,232
United Kingdom [1 4]	18,273	19,162	20,220
Total	23,646	25,024	26,024
Other non-Communist Europe:			
Finland	546	619	637
Spain	e 3,364	e 4,132	e 5,045
Total	3,910	4,751	5,682
Communist Europe:			
Czechoslovakia [3 5]	5,157	4,491	4,584
Hungary	[3] 1,552	[1 4] 1,971	[1 4] 2,000
Poland	[2] 6,031	6,373	6,488
Romania [1 4]	2,404	e 2,712	e 3,880
U.S.S.R. [6]	42,695	42,414	43,362
Yugoslavia [1 4]	1,072	1,330	1,482
Total	58,911	59,291	61,796
Other:			
Japan [4]	30,405	37,001	40,994
Turkey [1 4]	176	147	e 150
United States [1]	78,980	86,017	77,619
Grand total	242,486	262,287	264,442

e Estimate.
[1] Excludes scrap consumption by rerollers.
[2] Excludes scrap consumption by iron foundries.
[3] Scrap consumption in blast furnaces and steelworks only.
[4] Excludes scrap consumption by industries other than the iron and steel industries.
[5] U.S. Bureau of Mines estimate based on official Czechoslovakian data.
[6] Consumption in blast furnaces and open hearth steel furnaces only (excludes consumption in other types of steel furnaces, rerolling mills, iron foundries, and industries other than the iron and steel industries).

Source: Except where otherwise noted, United Nations Economic Commission for Europe. Quarterly Bulletin of Steel Statistics for Europe. V. 22, No. 4, New York, 1972.

Table 14.—Estimated world [1] consumption of major nonferrous metals

Commodity	1968	1969	1970
Aluminum [2] thousand metric tons	r 8,322	r 8,997	9,484
Copper [3] do	r 6,464	r 7,075	7,133
Lead [4] do	3,159	r 3,448	3,526
Zinc [5] do	r 4,379	r 4,760	4,575
Tin [6] thousand long tons	r 173	181	175

r Revised.
[1] In general, figures are totals for major consuming countries only; sum of consumption by excluded minor consumers may be significant; data included for communist countries (except Yugoslavia) are listed as conjectural in source.
[2] Apparently includes secondary metal.
[3] Primary and secondary refined metal.
[4] Chiefly primary, but including some secondary.
[5] Primary and secondary slab.
[6] Primary only, as reported by International Tin Council. Communist countries (except Yugoslavia) are excluded; consumption of primary and secondary tin by these countries is estimated at about 60,000 tons annually.

Source: Yearbook of the American Bureau of Metal Statistics. Fiftieth Annual Issue for the Year 1970. New York, 1971, 148 pp.

Table 15.—World energy consumption,[1] by energy source

(Million metric tons of standard coal equivalent unless otherwise specified)

Area[2] and year	Solid fuels	Liquid fuels	Natural and imported gas	Hydro, nuclear, and imported electricity	Total energy	
					Aggregate	Per capita (kilograms)
North America:						
1965	448	795	657	40	1,940	9,053
1966	471	834	707	42	2,053	9,460
1967	463	875	744	46	2,128	9,686
1968	481	930	799	47	2,257	10,164
1969	489	973	861	52	2,376	10,586
Caribbean America:						
1965	4	68	26	2	100	944
1966	4	69	31	2	107	972
1967	5	74	34	2	115	1,017
1968	5	83	34	3	126	1,078
1969	6	84	36	3	129	1,075
Other America:						
1965	6	61	10	4	80	578
1966	6	65	10	5	86	602
1967	7	67	11	5	90	608
1968	7	75	12	5	99	650
1969	8	82	13	6	108	691
Western Europe:						
1965	515	463	28	39	1,045	3,050
1966	480	518	33	43	1,080	3,123
1967	459	550	41	44	1,094	3,142
1968	456	602	58	46	1,161	3,314
1969	457	663	79	46	1,246	3,525
Africa:						
1965	53	32	2	2	88	283
1966	53	36	2	2	93	288
1967	54	37	2	2	94	284
1968	56	39	2	2	99	294
1969	57	40	2	2	102	294
Near East:						
1965	6	32	6	[3]	44	481
1966	6	34	7	[3]	48	512
1967	6	38	8	[3]	52	545
1968	6	40	10	1	57	578
1969	6	43	14	1	64	634
Far East:						
1965	151	152	10	12	324	321
1966	155	174	10	14	353	340
1967	164	206	11	13	393	371
1968	169	241	12	13	436	401
1969	179	278	13	15	486	436
Oceania:[4]						
1965	32	26	[3]	2	60	3,469
1966	32	28	[3]	2	63	3,525
1967	33	30	[3]	2	66	3,633
1968	34	33	[3]	2	70	3,784
1969	35	35	[3]	3	73	3,878
Countries not elsewhere specified:[5]						
1965	1,035	291	196	16	1,538	1,444
1966	1,080	317	218	18	1,633	1,513
1967	985	342	242	17	1,585	1,450
1968	1,065	372	263	19	1,719	1,552
1969	1,119	408	284	21	1,832	1,634
World total:						
1965	2,250	1,919	933	118	5,220	1,583
1966	2,294	2,075	1,018	128	5,515	1,640
1967	2,175	2,218	1,092	132	5,616	1,640
1968	2,281	2,415	1,189	138	6,023	1,727
1969	2,357	2,608	1,303	148	6,416	1,805

[1] In most cases data are aggregates of country figures representing apparent inland consumption—the purely arithmetic result of adding production and imports and subtracting from this sum the total of exports, bunker loadings, and additions to stocks (where the latter are known). All totals in this table are reported in source and may not represent the sum of listed parts owing to rounding and/or omission from detail in space of minor quantities not listed separately. A large number of the entries in this table have been revised from those appearing in previous editions of this chapter owing to revisions published in new edition of source; such revisions have not been identified as such by footnotes.

[2] Areas listed are those appearing in the source and have not been conformed in scope to standard terms used elsewhere in the Minerals Yearbook, except that the source term "Western Asia" has been converted to "Near East."

[3] Nil or less than ½ unit.

[4] All figures revised from those presented in 1969 edition of this chapter.

[5] The greatest part of the consumption listed under this heading is that of Eastern Europe—Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the U.S.S.R.

Source: United Nations. World Energy Supplies 1965–69. Statistical Papers, Series J, No. 13, New York, 1970, pp. 6–9.

Table 16.—Annual investment expenditures in the steel industry for selected countries

(Million dollars)

Country	1968	1969	1970
European Economic Community (EEC)	[1] 802	[r] 1,039	1,688
European Free Trade Association (EFTA) [2]	211	[r] 237	465
Other countries:			
Canada	NA	105	175
Finland	1	6	48
Ireland	([3])	[r] 5	NA
Japan [4]	1,167	1,494	1,889
Spain	213	221	253
Turkey	8	NA	31
United States	2,372	2,136	2,000

[r] Revised. NA Not available.

[1] Source, European Coal and Steel Commission. Investment in the Community Coal Mining and Steel Industries. Report on the 1970 Survey, 1970, p. 8.

[2] Totals given exclude expenditures, if any, for Denmark and Switzerland in every year and any non-British Steel Corp. investment in the United Kingdom.

[3] Less than ½ unit.

[4] Japanese fiscal years.

Source: Except where otherwise noted, Organization for Economic Cooperation and Development, The Iron and Steel Industry in 1970 and Trends in 1971 and previous editions of the same publication covering 1968 and 1969.

Table 17.—Non-Communist world petroleum industry capital expenditures and exploration expenses by geographic area

(Million dollars)

	1968	1969	1970
United States:			
Capital expenditures	8,350	8,175	8,225
Exploration expenses	715	725	665
Total	9,065	8,900	8,890
Other Western Hemisphere:			
Capital expenditures	2,490	2,715	2,760
Exploration expenses	265	270	275
Total	2,755	2,985	3,035
Western Europe:			
Capital expenditures	2,625	2,480	3,260
Exploration expenses	125	125	100
Total	2,750	2,605	3,360
Africa:			
Capital expenditures	785	825	790
Exploration expences	75	85	100
Total	860	910	890
Near East:			
Capital expenditures	625	730	565
Exploration expenses	50	50	50
Total	675	780	615
Far East:			
Capital expenditures	1,425	1,500	2,050
Exploration expenses	100	125	150
Total	1,525	1,625	2,200
Unspecified: Capital expenditures (no exploration expenditures)	1,600	1,950	2,475
Total:			
Capital expenditures	17,900	18,375	20,125
Exploration expenses	1,330	1,380	1,340
Total	19,230	19,755	21,465

Source: Energy Division, Chase Manhattan Bank N.A. Capital Investments of the World Petroleum Industry—1968, 1969, and 1970, pp. 20–21.

Table 18.—Non-Communist world petroleum industry capital expenditures by industry sector and exploration expenses

(Million dollars)

	1968	1969	1970
Capital expenditures:			
Production:			
Crude oil and natural gas	6,875	7,075	6,650
Natural gasoline plants	585	465	580
Pipelines	1,080	910	850
Marine	1,675	2,090	2,615
Refineries	2,950	3,210	4,000
Chemical plants	1,480	1,310	1,525
Marketing	2,665	2,805	3,220
Other	590	510	685
Total	17,900	18,375	20,125
Exploration expenses	1,330	1,380	1,340
Grand total	19,230	19,755	21,465

Source: Energy Division, Chase Manhattan Bank, N.A. Capital Investments of the World Petroleum Industry—1968, 1969, and 1970, pp. 24–25.

Table 19.—U.S. direct foreign investment in mineral industries: Value, earnings and income

(Million dollars)

Area and country	Mining, smelting and refining			Petroleum		
	Value	Earnings [1]	Income [2]	Value	Earnings [1]	Income [2]
1967 total	4,876	r 746	596	r 17,399	r 2,120	1,989
1968 total	5,435	r 795	r 644	18,887	r 2,449	r 2,271
1969 total	5,658	782	664	19,882	2,452	2,638
1970: p						
Canada	3,014	294	201	4,809	318	188
Latin America and other Western Hemisphere:						
Latin American Republics:						
Chile	455	59	62	NA	NA	NA
Venezuela	NA	NA	NA	1,734	285	283
Other	929	118	123	1,433	82	39
Subtotal	[3] 1,384	[3] 177	[3] 185	[3] 3,167	[3] 367	[3] 322
Other Western Hemisphere	652	103	106	762	49	24
Total	2,036	280	291	3,929	416	346
Europe:						
European Economic Community	15	NA	NA	2,525	22	7
United Kingdom	1	NA	NA	1,852	−12	40
Other West Europe	55	NA	NA	1,111	−25	−7
Total	71	8	--	5,488	−15	40
Africa:						
South Africa, Republic of	90	39	35	172	[4]	[4]
Other	350	58	32	1,916	594	544
Total	440	97	67	2,088	[3] 594	[3] 544
Near East	3	--	--	1,466	1,161	1,194
Far East and Pacific:						
Japan	--	--	--	540	29	6
Australia	478	70	52	737	[5] 37	[5] 25
New Zealand	4	--	--			
Other	91	−2	−1	1,066	134	98
Total	[3] 573	[3] 68	[3] 51	2,343	[5] 200	[5] 129
International shipping	--	--	--	1,667	275	164
Grand total [6]	6,137	748	609	21,790	2,950	2,603

p Preliminary. r Revised. NA Not available.
[1] Sum of U.S. share in net earnings of subsidiary and branch profits.
[2] Sum of interest, dividends and branch earnings.
[3] Partial figure; includes no figure for detail indicated as not available.
[4] Included with Australia and New Zealand below.
[5] Includes Republic of South Africa reported total.
[6] Detail may not add to totals shown because of independent rounding.

Table 20.—World merchant fleet distribution, by type [1]

	1966	1967	1968	1969	1970
Number of vessels:					
Tankers	3,610	3,740	3,895	4,071	4,232
Bulk carriers	2,039	2,368	2,609	2,748	2,954
Freighters	10,908	10,963	11,052	10,980	10,998
Other	1,746	1,729	1,805	1,771	1,796
Total	18,303	18,800	19,361	19,570	19,980
Gross tonnage:					
Tankers—thousand tons	58,999	65,804	71,641	79,457	88,896
Bulk carriers—do	22,350	31,644	37,596	41,746	47,199
Freighters—do	61,025	61,821	62,559	62,960	63,159
Other—do	12,674	12,253	12,446	12,084	12,147
Total—do	155,048	171,522	184,242	196,247	211,401
Deadweight tonnage:					
Tankers—do	93,022	105,542	117,135	133,421	153,075
Bulk carriers—do	34,177	49,638	59,926	67,638	77,173
Freighters—do	85,852	86,107	86,702	87,250	87,428
Other—do	9,363	9,116	9,447	9,214	9,323
Total—do	222,414	250,403	273,210	297,523	326,999

[1] Maritime Administration classification. Tankers include whaling tankers. Vessels shown here as "Other" include combination passenger and cargo, combination passenger and refrigerated cargo, and refrigerated freighters. Contribution of these vessels to mineral commodity trade is regarded as unimportant. Data are as of December 31 of year indicated.

Table 21.—Distribution of world oil tanker tonnage by size groups [1]

Size group (deadweight tons)	1966		1970			
			In service		New building in progress or on order at yearend	
	Million deadweight tons	Percent of total	Million deadweight tons	Percent of total	Million deadweight tons [2]	Percent of total
Under 25,000	30.0	30.2	28.3	18.2	1.3	1.8
25,000–45,000	25.3	25.5	27.4	17.6	2.1	3.0
45,000–65,000	21.2	21.3	22.5	14.5	.2	.3
65,000–85,000	12.7	12.8	17.1	11.0	.6	.9
85,000–105,000	6.6	6.6	15.4	9.9	.8	1.1
105,000–125,000	2.5	2.5	6.0	3.8	1.5	2.1
125,000–145,000	--	--	2.7	1.7	2.6	3.7
145,000–165,000	--	--	2.5	1.6	.6	.9
165,000–185,000	1.1	1.1	1.2	.8	--	--
185,000–205,000	--	--	3.9	2.5	.6	.9
205,000 and over	--	--	28.7	18.4	60.0	85.3
Total	[3] 99.4	100.0	155.7	100.0	70.3	100.0

[1] Includes vessels 2,000 deadweight tons and over.
[2] Excludes 20.3 million deadweight tons in bulk (multiple-cargo) carriers.
[3] Data differ slightly from total given in table 20 because of difference in source.

Source: British Petroleum Co. Ltd. BP Statistical Review of the World Oil Industry. Baynard Press, London, 1966, p. 15; 1970, p. 14.

Table 22.—Commercial ocean traffic through the Panama Canal in terms of number of transits and total cargo moved, by type of vessel

	Ore ships	Tankers	Combination carriers	Container cargo ships	Dry bulk carriers	General cargo ships	Other	Total
1969								
Number of transits:								
In ballast:								
Atlantic to Pacific	2	27	7	--	20	142	602	800
Pacific to Atlantic	2	898	11	--	277	141	118	1,447
Total	4	925	18	--	297	283	720	2,247
Laden:								
Atlantic to Pacific	11	993	75	32	1,075	3,029	522	5,737
Pacific to Atlantic	6	163	16	29	753	3,036	1,163	5,166
Total	17	1,156	91	61	1,828	6,065	1,685	10,903
In ballast and laden:								
Atlantic to Pacific	13	1,020	82	32	1,095	3,171	1,124	6,537
Pacific to Atlantic	8	1,061	27	29	1,030	3,177	1,281	6,613
Grand total	21	2,081	109	61	2,125	6,348	2,405	13,150
Cargo moved (thousand metric tons):								
Atlantic to Pacific	312	16,681	3,258	129	27,009	17,464	937	65,790
Pacific to Atlantic	128	1,942	392	132	14,355	17,390	2,889	37,228
Total	440	18,623	3,650	261	41,364	34,854	3,826	103,018
1970								
Number of transits:								
In ballast:								
Atlantic to Pacific	1	42	14	1	29	128	595	810
Pacific to Atlantic	--	764	--	--	219	153	116	1,252
Total	1	806	14	1	248	281	711	2,062
Laden:								
Atlantic to Pacific	--	932	99	66	1,274	3,213	630	6,214
Pacific to Atlantic	6	216	18	70	909	3,040	1,123	5,382
Total	6	1,148	117	136	2,183	6,253	1,753	11,596
In ballast and laden:								
Atlantic to Pacific	1	974	113	67	1,303	3,341	1,226	7,024
Pacific to Atlantic	6	980	18	70	1,128	3,193	1,239	6,634
Grand total	7	1,954	131	137	2,431	6,534	2,464	13,658
Cargo moved (thousand metric tons):								
Atlantic to Pacific	--	14,721	4,911	281	34,271	19,297	1,363	74,844
Pacific to Atlantic	156	3,377	569	334	17,164	16,685	2,962	41,247
Total	156	18,098	5,480	615	51,435	35,982	4,325	119,091

Source: Panama Canal Company. Annual Reports for 1969 and 1970.

Table 23.—Movement of mineral commodities through the Panama Canal, by commodity type and direction of movement

(Thousand metric tons)

Commodity	Atlantic to Pacific			Pacific to Atlantic			Total		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
METALS									
Aluminum:									
Bauxite and alumina	1,372	1,243	1,615	416	132	157	1,788	1,375	1,772
Metal, except scrap	44	101	65	69	74	183	113	175	248
Chromium, chromite	59	14	2	119	155	161	178	169	163
Copper:									
Ore and concentrate	124	68	101	251	170	187	375	238	288
Metal, except scrap	25	30	12	684	701	666	709	731	678
Iron and steel:									
Iron ore	34	179	289	3,127	2,924	3,993	3,161	3,103	4,282
Pig iron, steel ingots and other crude forms, except scrap	2,117	1,248	1,325	49	18	19	2,166	1,266	1,344
Semimanufactures (excluding tinplate)	1,869	1,881	2,002	4,216	5,510	6,243	6,085	7,391	8,245
Lead:									
Ore and concentrate	13	19	12	127	128	170	140	147	182
Metal, except scrap	13	3	5	203	147	183	216	150	188
Manganese ore and concentrate	77	109	99	48	133	76	125	242	175
Tin:									
Ore and concentrate	--	1	2	77	89	78	77	90	80
Metal (including tinplate)	142	145	134	90	94	90	232	239	224
Zinc:									
Ore and concentrate	129	150	140	215	153	216	344	303	356
Metal, except scrap	8	19	11	129	148	153	137	167	164
Other and unclassified:									
Ore and concentrate	47	91	54	403	533	623	450	624	677
Metal, except scrap	30	35	31	78	102	118	108	137	149
Metal scrap, all metals	2,845	2,683	3,975	25	33	34	2,870	2,716	4,009
NONMETALS									
Asbestos	182	193	229	29	46	50	211	239	279
Borax	6	9	8	360	340	456	366	349	464
Cement	106	116	169	46	13	15	152	129	184
Clays and clay products:									
Fire clay and kaolin	185	230	301	15	21	35	200	251	336
Brick and tile	40	59	77	103	136	151	143	195	228
Diatomaceous earth	6	8	4	66	55	52	72	63	56
Fertilizer materials:									
Nitrogenous:									
Ammonium compounds	248	390	350	5	16	58	253	406	408
Sodium nitrate	17	21	23	449	392	388	466	413	411
Phosphatic	4,296	4,737	3,792	104	94	6	4,400	4,831	3,798
Potassic	127	155	186	654	721	509	781	876	695
Unclassified	565	636	794	13	43	184	578	679	978
Sodium compounds:									
Salt	278	196	144	320	376	512	598	572	656
Other	99	99	77	17	60	29	116	159	106
Sulfur	466	193	213	198	182	306	664	375	519

MINERAL FUELS AND RELATED MATERIALS									
Coal and coke	13,354	16,522	21,648	52	30	26	13,406	16,552	21,674
Petrochemicals	368	479	354	154	126	237	522	605	591
Petroleum:									
Crude	5,406	6,092	4,199	661	581	1,710	6,067	6,673	5,909
Refinery products	10,953	10,168	10,526	1,022	1,065	1,513	11,975	11,233	12,839
Total	45,650	48,322	52,902	14,594	15,541	19,560	60,244	63,863	72,462

Table 24.—Indexes of ocean freight rates

(1963 = 100)

	London tanker brokers panel	Trip charter									Time charter	
		West Germany		Netherlands (general)	Norway		United Kingdom				Norway (dry cargo)	United Kingdom (dry cargo)
		Dry cargo	Tankers		Dry cargo	Tankers	General	Coal trade	Ore trade	Fertilizer trade		
1967	109	102	154	92	104	155	111	95	85	186	113	124
1968	108	100	158	[1] 94	102	142	114	92	NA	206	118	132
1969: [2]												
First quarter	91	92	111	NA	93	103	108	86	NA	190	112	133
Second quarter	83	97	102	NA	93	98	100	86	NA	140	110	141
Third quarter	90	101	136	NA	93	122	100	84	NA	168	111	127
Fourth quarter	NA	111	201	NA	101	186	109	101	NA	184	120	136
Annual average	90	100	127	NA	94	119	108	90	NA	172	114	131
1970: [2]												
First quarter	101	157	164	NA	133	180	NA	NA	NA	NA	145	NA
Second quarter	106	151	231	NA	134	215	NA	NA	NA	NA	169	NA
Third quarter	134	159	335	NA	142	322	NA	NA	NA	NA	190	NA
Fourth quarter	150	130	291	NA	132	280	NA	NA	NA	NA	174	NA
Annual average	119	146	250	NA	122	243	NA	NA	NA	NA	166	NA

NA Not available.
[1] Quarterly average for first quarter only.
[2] Quarterly figures are those for the last month in the quarter.

Source: United Nations. Monthly Bulletin of Statistics. December 1970, p. xviii; and September 1971, p. xvi.

Table 25.—Nonferrous metal prices in the United States

(Average, cents per pound except where otherwise noted)

Year and month	Aluminum [1]	Copper [2]	Lead [3]	Zinc [4]	Tin [5]	Silver [6]
1968	25.583	[7] 41.847	13.012	13.500	148.151	214.460
1969	27.176	47.534	14.695	14.600	164.498	179.067
1970:						
January	28.000	55.753	16.300	15.500	179.738	187.650
February	28.000	56.000	16.300	15.500	175.208	189.579
March	28.000	56.000	16.300	15.500	177.113	188.848
April	28.591	49.300	16.300	15.500	183.875	185.286
May	29.000	59.700	16.300	15.500	180.563	167.000
June	29.000	59.700	16.300	15.500	170.284	163.936
July	29.000	59.600	15.482	15.500	164.773	168.659
August	29.000	59.600	14.895	15.333	174.429	179.767
September	29.000	59.600	14.318	15.000	174.738	180.162
October	29.000	58.500	14.300	15.000	173.625	174.581
November	29.000	55.600	14.300	15.000	172.250	176.035
December	29.000	52.600	13.936	15.000	163.864	163.477
Annual average	28.716	57.700	15.419	15.319	174.205	177.085

[1] Unalloyed ingot, 99.5 percent, delivered United States.
[2] Electrolytic copper, domestic refineries, Atlantic Seaboard.
[3] Refined lead, St. Louis.
[4] Prime Western slab, f.o.b., East St. Louis.
[5] Straits tin, New York.
[6] Cents per troy ounce, 0.999 fine, New York.
[7] Based on last 9 months of 1968.

Source: Yearbook of the American Bureau of Metal Statistics. Fiftieth Annual Issue for the year 1970. New York, New York, 1971, 148 pp.

Table 26.—Nonferrous metal prices in the United Kingdom

(Average, £ per long ton unless otherwise noted) [1]

Year and month	Aluminum [2]	Copper [3]	Lead [4]	Zinc [5]	Tin [6]	Silver [7]
1968	233.981	523.975	101.796	111.175	1,323.863	219.529
1969	248.449	621.254	122.700	121.150	1,451.838	180.774
1970:						
January	256.666	677.619	135.167	125.875	1,602.571	185.881
February	256.666	690.525	139.194	123.981	1,570.850	188.800
March	256.666	730.875	139.675	123.269	1,582.150	187.575
April	259.011	725.659	133.659	122.097	1,604.955	184.227
May	261.333	666.250	130.444	121.494	1,599.000	167.813
June	261.333	607.341	128.267	121.966	1,477.409	164.125
July	261.333	568.065	125.087	123.967	1,458.609	168.777
August	261.333	527.775	118.863	124.500	1,509.100	180.200
September	261.333	519.568	118.460	124.898	1,519.545	181.591
October	261.333	476.068	118.659	123.426	1,529.500	175.568
November	261.333	452.190	116.536	121.661	1,507.619	176.589
December	261.333	435.682	115.165	120.398	1,457.864	163.665
Annual average	259.973	587.902	126.427	123.120	1,530.384	177.068

[1] London Metal Exchange, average settlement prices.
[2] Ingots, 99.5 percent.
[3] Electrolytic wirebars.
[4] Refined pig lead, 99.97 percent.
[5] Virgin zinc, 98 percent.
[6] Standard tin.
[7] Pence per troy ounce, 0.999 fine.

Table 27.—Nonferrous metal prices in Canada

(Average, Canadian cents per pound unless otherwise noted)

Year and month	Aluminum [1]	Copper [2]	Lead [3]	Zinc [3]	Silver [4]
1968	27.07	48.020	13.443	13.500	230.557
1969	28.70	50.794	15.163	14.642	192.803
1970:					
January	29.50	57.000	16.500	15.500	201.300
February	29.50	57.000	16.500	15.500	203.370
March	29.50	59.000	16.500	15.500	202.576
April	29.50	59.000	16.500	15.500	198.773
May	29.50	59.000	16.500	15.500	178.100
June	29.50	59.000	16.500	15.500	170.250
July	29.50	59.000	16.114	15.500	174.095
August	29.50	59.000	15.643	15.357	183.676
September	29.50	59.000	15.500	15.000	183.071
October	29.50	58.433	14.500	15.000	178.310
November	29.50	57.300	14.500	15.000	179.000
December	29.50	54.072	14.500	15.000	166.327
Annual average	29.50	58.067	15.813	15.321	184.904

[1] Ingot 99.5 percent, f.o.b. delivered Canadian points.
[2] Electrolytic wirebar, f.o.b. delivered Canadian points.
[3] Pig lead, prime western zinc; producers' prices, carload quantities, communicated by Cominco Ltd.
[4] Canadian cents per troy ounce, average price of Cominco Ltd.

Source: Yearbook of the American Bureau of Metal Statistics. Fiftieth Annual Issue for the year 1970. New York, New York, 1971, 148 pp.

Table 28.—Mineral commodity export price indexes

(1963 = 100)

Year and quarter	Metal ores	Fuels	All crude minerals
1968	108	100	102
1969	114	100	104
1970:			
First quarter	124	103	108
Second quarter	122	104	108
Third quarter	121	106	110
Fourth quarter	121	108	110
Annual average	122	105	109

Source: United Nations. Monthly Bulletin of Statistics. New York, September 1971, p. xiii.

Table 29.—Analysis of export price indexes

(1963 = 100)

Year and quarter	Developed areas		Less developed areas	
	Total minerals	Nonferrous base metals	Total minerals	Nonferrous base metals
1968	104	142	102	165
1969	107	158	103	187
1970:				
First quarter	118	176	104	211
Second quarter	120	174	104	205
Third quarter	124	162	104	181
Fourth quarter	126	154	104	166
Annual average	122	167	104	191

Source: United Nations. Monthly Bulletin of Statistics. New York, September 1971, p. xiii.

Table 30.—Leading world producers of bauxite

(Gross weight, thousand metric tons)

Country	1968	1969	1970 p
Jamaica	8,525	10,499	12,009
Australia	r 4,955	7,924	9,389
Surinam	r 5,658	5,450	e 5,340
U.S.S.R.e 1	5,000	5,000	5,000
Guyana	3,722	4,306	e 4,560
France	2,713	2,773	2,992
Guinea	r 2,117	2,459	e 2,600
Greece	r 1,836	1,916	2,278
United States	1,691	1,872	2,115
Yugoslavia	2,072	2,128	2,099
Hungary	1,959	1,935	2,022
Total	r 40,248	46,262	50,404
All others	r 5,753	6,396	7,564
Grand total	r 46,001	52,658	57,968

e Estimate. p Preliminary. r Revised.
1 Excludes nepheline concentrates and alunite ore.

Table 31.—Leading world producers of aluminum

(Thousand metric tons)

Country	1968	1969	1970 p
United States	2,953	3,441	3,607
U.S.S.R.e	1,000	1,050	1,100
Canada	888	996	965
Japan	482	569	733
Norway	468	507	530
France	366	372	380
Germany, West	257	263	309
Australia	97	126	204
India	120	131	161
Italy	142	142	146
China, mainland e	r 90	120	130
Total	6,863	7,717	8,265
All others	1,156	1,291	1,407
Grand total	r 8,019	9,008	9,672

e Estimate. p Preliminary. r Revised.

Table 32.—Leading world producers of mine copper

(Copper content of ore, thousand metric tons)

Country	1968	1969	1970 p
United States 1	r 1,093	1,401	1,560
Chile	667	699	686
Zambia	665	748	683
Canada 1	r 575	520	613
U.S.S.R.e	r 520	550	570
Congo (Kinshasa)	325	357	386
Peru	213	199	212
Australia	109	131	146
Philippines	110	131	145
South Africa, Republic of	r 128	126	149
Japan	120	121	124
Total	r 4,525	4,983	5,274
All others	r 589	645	676
Grand total	r 5,114	5,628	5,950

e Estimate. p Preliminary. r Revised.
1 Recoverable.

Table 33.—Leading world producers of iron ore, iron ore concentrates, and iron ore agglomerates

(Thousand metric tons)

Country	1968	1969	1970 p
U.S.S.R.	176,616	186,134	194,200
United States	r 87,243	89,746	91,201
France	55,238	55,425	56,800
Australia	r 26,625	39,094	51,104
Canada	r 43,040	36,337	48,271
China, mainland e	38,000	40,000	44,000
Brazil	25,123	e 33,000	e 40,200
Sweden	r 32,419	33,185	31,774
India	27,433	29,564	30,780
Liberia	19,571	22,866	22,294
Venezuela	16,190	19,716	22,200
United Kingdom	r 13,936	12,298	12,018
Chile	11,916	11,534	11,265
Total	r 573,350	608,899	656,107
All others	105,897	109,957	110,582
Grand total	679,247	718,856	766,689

e Estimate. p Preliminary. r Revised.

Table 34.—Leading world producers of steel ingots and castings

(Thousand metric tons)

Country	1968	1969	1970 p
United States	119,260	128,151	119,308
U.S.S.R.	106,537	110,328	116,000
Japan	r 66,893	82,166	93,322
Germany, West	41,159	45,316	45,041
United Kingdom	r 26,277	26,846	28,316
France	r 20,409	22,511	23,773
Italy	16,964	16,428	17,277
China, mainland e	15,000	16,000	17,000
Belgium	11,568	12,832	12,607
Poland	11,007	11,291	11,792
Czechoslovakia	10,555	10,802	11,480
Canada	10,207	9,350	11,200
Spain	4,924	6,005	7,388
Australia	6,502	7,017	6,822
Romania	4,751	5,540	6,517
Total	r 472,013	510,583	527,843
All others	r 57,482	63,243	65,896
Grand total	r 529,495	573,826	593,739

e Estimate. p Preliminary. r Revised.

Table 35.—Leading world producers of mine lead

(Lead content of ore, recoverable where indicated, thousand metric tons)

Country	1968	1969	1970
United States [1]	326	462	519
Australia	389	451	450
U.S.S.R. e	420	440	440
Canada	327	300	358
Mexico [1]	174	171	177
Peru [1]	155	155	155
Yugoslavia	112	118	127
Bulgaria	94	91	e 120
China, mainland e	100	100	100
Total	2,097	2,288	2,446
All others	915	950	959
Grand total	r 3,012	3,238	3,405

e Estimate. r Revised.
[1] Recoverable.

Table 36.—Leading world producers of manganese ore

(Thousand metric tons)

Country	1968	1969	1970 p
U.S.S.R.	6,564	6,551	e 7,000
South Africa, Republic of	1,972	2,204	2,679
Brazil	r 1,680	1,965	1,929
India	1,602	1,485	1,651
Gabon	r 1,255	1,363	1,453
China, mainland e	900	1,000	1,000
Australia	r 744	922	804
Ghana (dry weight)	413	333	405
Congo (Kinshasa)	322	311	347
Mexico	59	144	274
Japan	312	301	271
Total	r 15,823	16,579	17,813
All others	r 1,076	835	684
Grand total	r 16,899	17,414	18,497

e Estimate. p Preliminary. r Revised.

Table 37.—Leading world producers of mine tin

(Tin content of ore, long tons)

Country	1968	1969	1970 p
Malaysia	75,069	72,167	72,628
Bolivia	r 29,101	29,572	28,916
U.S.S.R.[1]	26,000	27,000	27,000
Thailand	r 23,601	20,759	21,140
China, mainland [1]	20,000	20,000	20,000
Indonesia	r 16,671	17,138	18,761
Australia	r 6,537	8,013	8,735
Nigeria	r 9,649	8,603	7,833
Total	r 206,628	203,252	205,013
All others	r 21,704	20,827	21,556
Grand total	r 228,332	224,079	226,569

p Preliminary. r Revised.
[1] Estimated smelter production.

Table 38.—Leading world producers of mine zinc

(Zinc content of ore, thousand metric tons)

Country	1968	1969	1970 p
Canada	1,155	1,194	1,239
U.S.S.R. e	r 540	610	610
United States	480	502	485
Australia	422	507	484
Peru	291	300	317
Japan	264	269	280
Mexico	240	253	264
Poland	r 164	171	e 190
Korea, North e	120	125	130
Germany, West	110	111	123
Italy	140	132	109
Congo (Kinshasa)	r 108	86	105
Yugoslavia	95	97	101
China, mainland e	100	100	100
Total	r 4,229	4,457	4,537
All others	r 746	888	962
Grand total	r 4,975	5,345	5,499

e Estimate. p Preliminary. r Revised.

Table 39.—Leading world producers of hydraulic cement

(Thousand metric tons)

Country	1968	1969	1970 p
U.S.S.R.	87,512	89,740	95,200
United States (including Puerto Rico)	r 70,274	71,060	69,367
Japan	r 47,677	51,387	57,189
Germany, West	r 33,443	35,078	38,325
Italy	r 29,465	31,498	33,128
France	r 25,393	27,543	28,900
United Kingdom	17,873	17,422	17,053
Spain (includes Canary Islands)	r 14,954	15,774	16,536
India	11,940	13,260	13,543
Poland	11,600	11,830	12,180
China, mainland e	9,000	10,000	10,000
Brazil	7,281	7,823	9,002
Romania	7,026	7,515	8,127
Germany, East	7,551	7,410	e 7,500
Czechoslovakia	6,493	6,733	7,401
Canada	7,408	7,484	7,316
Mexico	6,126	6,787	7,126
Total	r 401,016	418,344	437,893
All others	r 114,331	123,988	133,455
Grand total	r 515,347	542,332	571,348

e Estimate. p Preliminary. r Revised.

Table 40.—Leading world producers of nitrogen fertilizer compounds

(Thousand metric tons of contained nitrogen)

Country	1968 [1]	1969 [1]	1970 [1] p
United States (including Puerto Rico)	6,607	7,139	7,632
U.S.S.R.	3,753	4,177	4,509
Japan	2,035	2,099	2,152
Germany, West	1,559	1,598	1,574
France	1,233	1,366	1,313
China, mainland	850	940	e 1,089
Italy	1,096	1,089	960
Poland	594	759	938
Netherlands	849	954	906
India	403	563	731
Total	18,979	20,684	21,804
All others	6,865	8,026	8,796
Grand total	25,844	28,710	30,600

e Estimate. p Preliminary.
[1] Year ending June 30 of that stated.

Table 41.—Leading world producers of phosphate rock [1]

(Thousand metric tons)

Country	1968	1969	1970 p
United States	37,422	34,224	35,143
U.S.S.R. e [2]	17,700	19,250	20,400
Morocco	10,512	10,662	11,399
Tunisia	3,444	2,685	3,016
Nauru Island [3]	2,254	2,198	2,200
Total	71,332	69,019	72,158
All others	r 12,669	12,690	13,050
Grand total	r 84,001	81,709	85,208

e Estimate. p Preliminary. r Revised.
[1] Includes output of all major crude mineral sources of phosphate.
[2] Includes material described as sedimentary rock in Soviet sources.
[3] Exports.

Table 42.—Leading world producers of marketable potash

(Thousand metric tons K_2O equivalent)

Country	1968	1969	1970 p
U.S.S.R.	3,120	e 3,180	e 4,450
Canada	r 2,695	3,168	3,106
Germany, West	2,561	2,626	2,645
United States	r 2,469	2,544	2,476
Germany, East	2,293	2,346	e 2,400
France	1,857	1,938	e 1,914
Total	r 14,995	15,802	16,991
All others	r 1,214	1,262	1,595
Grand total	r 16,209	17,064	18,586

e Estimate. p Preliminary. r Revised.

Table 43.—Leading world producers of pyrite

(Gross weight, thousand metric tons)

Country	1968	1969	1970 p
U.S.S.R. e	3,500	3,500	4,000
Japan	r 2,916	2,966	2,751
Spain	2,403	2,474	2,736
China, mainland e	1,500	1,800	2,000
Italy	1,406	1,474	1,518
Finland	774	855	963
Cyprus	r 1,050	927	871
South Africa, Republic of	704	837	868
Norway	693	767	747
Romania	e 360	e 360	807
Sweden	474	495	575
Germany, West	616	640	554
Total	16,396	17,095	18,390
All others	4,699	3,836	3,772
Grand total	r 21,095	20,931	22,162

e Estimate. p Preliminary. r Revised.

Table 44.—Leading world producers of salt

(Thousand metric tons)

Country	1968	1969	1970 p
United States (including Puerto Rico)	37,472	40,167	41,582
China, mainland e	15,000	15,000	16,000
U.S.S.R.	11,000	12,000	e 13,000
Germany, West	7,558	8,359	9,932
United Kingdom	7,755	8,727	9,188
India (including Goa)	5,044	6,380	5,588
France	4,442	4,882	e 5,084
Canada	4,413	4,225	4,583
Italy	3,918	3,947	4,367
Mexico	3,598	3,889	4,153
Poland	2,632	2,817	2,903
Netherlands	2,413	2,669	2,869
Romania	2,368	e 2,400	2,862
Germany, East	1,970	1,972	e 2,060
Spain	1,820	1,847	e 1,900
Brazil	1,248	1,629	1,823
Australia	914	1,680	e 1,700
Total	113,565	122,590	129,594
All others	12,690	13,174	13,043
Grand total	126,255	135,764	142,637

e Estimate. p Preliminary.

Table 45.—Leading world producers of elemental sulfur

(Thousand metric tons)

Country	1968	1969	1970 p
United States	8,955	8,698	8,668
Canada	r 3,201	3,860	4,442
Poland	r 1,337	1,981	e 2,684
France	r 1,635	1,732	1,733
U.S.S.R. e	1,500	1,600	1,600
Mexico	1,685	1,716	1,380
Japan	336	348	340
China, mainland e	250	250	250
Germany, West	127	129	176
Italy	131	124	117
Total	r 19,157	20,438	21,390
All others	r 635	667	683
Grand total	r 19,792	21,105	22,073

e Estimate. p Preliminary. r Revised.

Table 46.—Leading world producers of coal (all grades)

(Million metric tons)

Country	1968			1969			1970 p		
	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total
U.S.S.R.[1]	138	456	594	140	467	607	e 150	e 474	e 624
United States	4	501	505	5	513	518	5	550	555
China, mainland e	(2)	r 300	300	(2)	330	330	(2)	360	360
Germany, East	247	2	249	255	1	256	261	1	262
Germany, West	102	[3] 112	214	108	[3] 112	220	108	[3] 113	221
Poland	27	129	156	31	134	165	33	140	173
United Kingdom	--	167	167	--	153	153	--	145	145
Czechoslovakia	75	26	101	80	27	107	81	28	109
India	4	71	75	4	75	79	4	72	76
Australia	23	41	64	23	46	69	24	49	73
South Africa, Republic of	--	52	52	--	53	53	--	60	60
Japan	(4)	47	47	(4)	45	45	(4)	40	40
France	3	42	45	3	41	44	3	37	40
Bulgaria	r 28	(4)	r 28	29	(4)	29	29	(4)	29
Yugoslavia	26	1	27	26	1	27	28	1	29
Hungary	23	4	27	22	4	26	24	4	28
Korea, North e	(2)	23	23	(2)	25	25	(2)	27	27
Total	r 700	r 1,974	r 2,674	726	2,027	2,753	750	2,101	2,851
All others	r 34	r 92	r 126	34	90	124	37	95	132
Grand total	r 734	r 2,066	r 2,800	760	2,117	2,877	787	2,196	2,983

e Estimate. p Preliminary. r Revised.
[1] Excludes output from U.S.S.R. controlled portion of Svalbard (Spitzbergen).
[2] Output small, included under bituminous and anthracite.
[3] Includes pech coal.
[4] Less than ½ unit.

Table 47.—Leading world producers of marketed natural gas

(Billion cubic feet)

Country	1968	1969	1970 p
United States	19,322	20,698	21,921
U.S.S.R.	r 6,032	6,457	7,063
Canada	1,692	1,978	2,295
Netherlands	r 487	763	1,107
Romania	r 768	843	875
Mexico	r 371	417	481
Italy	368	422	464
Germany, West	r 224	311	e 440
Iran	56	98	396
United Kingdom	71	179	392
Venezuela	301	314	349
France	r 198	230	243
Argentina	189	188	212
Kuwait	176	192	204
Total	r 30,255	33,090	36,442
All others	r 1,079	1,290	1,465
Grand total	r 31,334	34,380	37,907

e Estimate. p Preliminary. r Revised.

Table 48.—Leading world producers of crude oil

(Million 42-gallon barrels)

Country	1968	1969	1970 p
United States	3,329	3,372	3,517
U.S.S.R.	r 2,272	2,413	2,595
Iran	1,039	1,232	1,397
Saudi Arabia	r 1,114	1,174	1,387
Venezuela	1,319	1,312	1,353
Libya	r 951	1,134	1,209
Kuwait	r 964	1,022	1,090
Iraq	r 549	555	570
Canada	379	411	461
Nigeria	52	197	396
Algeria	r 331	345	372
Indonesia	220	271	312
Trucial States	182	223	284
Mexico	142	150	157
China, mainland e	r 72	106	146
Argentina	125	130	143
Qatar	124	130	132
Oman	88	120	121
United Arab Republic	62	90	119
Romania	r 101	101	102
Total	r 13,415	14,488	15,863
All others	r 678	726	827
Grand total	14,093	15,214	16,690

e Estimate. p Preliminary. r Revised.

Table 49.—Major world trade in bauxite and alumina [1]

(Thousand metric tons)

Source countries	1969 production by source country [2]	1969 export by source country [2]	Recipient countries [3]											
			United States	Canada	Austria	France	West Germany	Italy	Norway	Sweden	United Kingdom	U.S.S.R.	Japan	Selected other [4]
Bauxite:														
Australia	7,924	NA	--	70	--	316	542	--	--	--	--	--	1,558	196
Dominican Republic	1,098	NA	1,133	--	--	--	--	--	--	--	--	--	--	--
France	2,773	148	--	--	--	XX	77	--	--	--	71	--	--	3
Ghana	270	288	--	--	--	--	--	--	--	--	273	--	--	--
Greece	1,916	1,309	22	--	--	84	298	--	22	40	75	529	11	146
Guinea	2,459	NA	17	19	--	--	--	28	--	--	--	44	--	--
Guyana	4,306	2,635	516	1,760	--	47	58	36	--	6	9	--	65	71
Haiti	665	NA	696	--	--	--	--	--	--	--	--	--	--	--
Hungary	1,935	656	--	--	7	--	80	--	--	--	--	--	--	--
India	992	55	--	14	--	--	8	59	--	--	24	--	31	10
Indonesia	765	838	--	--	--	--	--	70	--	--	--	--	768	--
Jamaica	10,499	7,723	8,626	533	--	--	--	--	--	--	--	--	--	--
Malaysia	1,073	877	--	106	--	--	--	--	--	--	--	--	669	--
Sierra Leone	454	442	--	--	--	--	346	76	--	--	--	--	--	--
Surinam	5,450	3,678	2,887	503	18	32	41	7	--	--	25	--	14	--
United States	1,872	3	XX	218	--	--	--	--	--	3	--	--	--	4
Yugoslavia	2,128	1,983	--	--	--	--	571	282	--	--	--	827	--	--
Other and not specified	11,394	NA	350	1	1	1	3	30	(5)	19	1	--	6	20
Total	57,968	NA	14,247	3,224	26	480	2,019	588	22	68	478	1,400	3,122	450
Alumina:														
Australia	1,931	NA	1,188	70	11	--	--	--	--	--	--	--	220	--
Canada	e1,000	18	164	XX	--	2	--	1	--	--	2	--	--	--
France	1,106	287	(5)	--	--	XX	3	34	4	--	1	29	--	176
Germany, West	680	108	1	(5)	101	2	XX	2	2	14	2	--	1	30
Greece	300	119	(5)	--	--	--	--	28	--	--	--	38	--	25
Guinea	572	NA	--	--	17	--	68	--	179	--	1	5	--	96
Guyana	303	301	--	129	--	--	--	--	96	32	--	--	--	39
Hungary	408	383	--	--	31	--	--	--	--	--	--	169	--	5
Jamaica	1,155	1,196	94	533	--	--	--	--	335	87	--	--	--	16
Japan	1,064	113	62	--	--	--	--	--	--	--	--	--	XX	3
Surinam	e967	856	365	20	--	--	10	--	145	--	--	--	--	140
United States	6,654	1,349	XX	212	--	1	4	3	202	18	1	354	1	1
Yugoslavia	122	24	--	--	23	--	--	--	--	--	--	--	--	1
Other and not specified	3,272	NA	3	(5)	11	1	1	5	24	2	2	1	1	30
Total	19,534	NA	1,877	964	194	6	86	73	987	148	9	596	223	562

e Estimate. NA Not available. XX Not applicable.

[1] Data presented are compiled from import statistics for countries listed as recipient countries and, as such, are incomplete, but are believed to account for the overwhelming share of total world movements of bauxite and alumina.

[2] As reported in latest country chapter of Minerals Yearbook, V. III. Data on bauxite production is on dry equivalent basis for a number of countries, and as such may be reported on a different basis from bauxite exports, which almost universally are on a gross weight basis and which were obtained from the Statistical Office of the United Nations. Data on alumina production are generally for output prior to calcination, while data on alumina exports, also from the Statistical Office of the United Nations, include aluminum hydroxide and thus may not be exactly comparable.

[3] Countries selected are most of the world's significant aluminum producers that depend upon imports of bauxite and/or alumina for a significant share of their raw material requirements, plus a few minor countries for which data were readily available. Data are from the Statistical Office of the United Nations except for U.S.S.R. figures which were obtained from official Soviet sources.

[4] Countries included are as follows: Bauxite—Belgium, Luxembourg, The Netherlands, Spain, and Yugoslavia; alumina—Australia, Belgium, Denmark, Finland, Greece, Luxembourg, The Netherlands, New Zealand, Portugal, Spain, Switzerland, and Turkey.

[5] Less than ½ unit.

Table 50.—Major world trade [1] in unrefined and refined unwrought copper in 1969

(Thousand metric tons)

Source countries	Destinations							
	Belgium-Luxembourg	Brazil	Czechoslovakia	France	Germany		Italy	Japan
					East	West		
Belgium-Luxembourg	XX	2	--	101	(2)	52	24	--
Canada	1	2	--	14	--	10	2	--
Chile	12	8	--	43	--	52	63	56
Congo (Kinshasha) [3]	246	--	--	31	--	3	37	13
Germany, West	7	2	--	21	--	XX	2	--
Peru	14	--	--	1	--	18	(2)	15
U.S.S.R.	--	--	38	--	--	(2)	--	--
United Kingdom	2	(2)	1	7	(2)	30	16	--
United States	3	15	--	15	--	26	34	14
Zambia	(2)	8	2	70	--	96	77	182
Other and unspecified [4]	15	--	--	17	--	53	5	20
Total	300	37	41	320	(2)	340	260	300

Source countries	Destinations							
	Netherlands	Spain	Sweden	Switzerland	United Kingdom	United States	Other and unspecified	Total
Belgium-Luxembourg	39	9	11	10	1	(2)	12	261
Canada	2	1	1	1	73	76	8	191
Chile	75	23	25	--	110	102	16	585
Congo (Kinshasha) [3]	4	--	--	--	3	--	4	341
Germany, West	5	1	--	10	14	4	35	101
Peru	18	(2)	--	--	2	97	4	169
U.S.S.R.	2	--	--	--	--	--	67	107
United Kingdom	13	2	2	1	XX	--	33	107
United States	8	2	4	2	22	XX	41	186
Zambia	6	17	17	10	190	2	49	726
Other and unspecified [4]	11	2	2	4	42	8	37	216
Total	183	57	62	38	457	289	306	2,990

XX Not applicable.

[1] Data are compiled chiefly from export statistics for countries listed as source countries in stub of table.

[2] Less than ½ unit.

[3] Import statistics of listed trading partners.

[4] Includes the following countries (total exports in thousand tons in parentheses following country name): Australia (42); Austria (6); Denmark (1); Finland (6); France (18); Italy (5); Japan (15); the Netherlands (9); New Zealand (4); Norway (30); Sweden (39); Switzerland (4); Turkey (7); Yugoslavia (18).

Table 51.—Major world trade in iron ores, concentrates, and agglomerates (excluding roasted pyrite)[1] in 1969

(Thousand metric tons)

Source country	Recorded total 1969 export of source country[2]	Recorded imports of principal recipient countries[3]						
		Canada	United States	Belgium-Luxembourg	Czechoslovakia	France	Germany, West	Hungary
Algeria	2,765	--	--	372	--	39	13	--
Angola	5,109	--	51	73	--	261	2,182	--
Australia	26,871	--	320	579	--	443	824	--
Brazil	21,478	177	1,252	1,344	135	1,465	6,382	--
Canada	28,354	XX	19,284	7	--	32	2,057	--
Chile	9,645	41	1,811	--	--	--	153	--
France	18,515	--	--	13,284	--	XX	5,276	--
India	20,425	--	--	380	810	--	84	151
Liberia	[4] 21,700	--	3,195	1,178	--	1,222	6,666	--
Malaysia	5,347	--	--	--	--	--	--	--
Mauritania	8,576	28	--	1,093	--	1,757	1,237	--
Norway	2,732	--	273	79	--	19	1,436	--
Peru	9,041	--	1,019	--	--	354	55	--
Philippines	1,625	--	11	--	--	--	--	--
Sierra Leone	2,417	--	--	--	--	10	543	--
South Africa, Republic of[5]	4,739	--	--	--	--	--	8	--
Spain	1,676	--	--	--	--	243	796	--
Sweden	31,713	--	158	9,044	372	1,083	13,582	--
U.S.S.R.	33,071	--	--	--	9,100	--	41	2,763
United States	5,243	2,031	XX	--	--	--	--	--
Venezuela	18,992	20	13,972	49	--	--	1,734	--
Other countries and origin unreported[6]	3,852	--	41	35	299	13	352	--
Total	283,886	2,297	41,387	27,517	10,716	6,941	43,421	2,914

Source country	Recorded imports of principal recipient countries[3]							
	Italy	Netherlands	Poland	Romania	United Kingdom	Other Europe[7]	Japan	Total of listed imports
Algeria	820	--	485	--	206	19	--	1,954
Angola	--	--	--	--	335	119	1,996	5,017
Australia	734	160	--	--	308	42	23,235	26,645
Brazil	1,255	515	134	--	1,038	1,627	4,185	19,509
Canada	1,185	1,010	--	--	2,942	77	2,044	28,638
Chile	--	--	--	--	--	--	7,769	9,774
France	--	--	--	--	26	--	--	18,586
India	--	8	348	--	11	256	13,633	15,681
Liberia	2,197	1,342	--	--	1,527	417	2,300	20,044
Malaysia	--	--	--	--	--	--	5,352	5,352
Mauritania	1,157	260	--	--	1,988	228	491	8,239
Norway	--	524	89	--	2,074	418	--	4,912
Peru	212	--	--	--	--	--	8,628	10,263
Philippines	--	--	--	--	--	--	1,612	1,623

Sierra Leone	20	581	--	--	378	--	788	2,320
South Africa, Republic of [5]	100	--	--	--	--	--	4,670	4,778
Spain	--	--	--	--	541	36	--	1,616
Sweden	304	562	499	--	3,473	779	146	30,002
U.S.S.R.	1,012	--	9,994	[8] 3,832	1,378	2,812	1,211	32,143
United States	--	--	--	--	--	--	3,153	5,184
Venezuela	1,211	--	--	--	1,553	--	--	18,539
Other countries and origin unreported [6]	751	--	26	[9] 1,557	490	431	2,037	6,032
Total	10,958	4,962	11,575	5,389	18,268	7,261	83,245	276,851

XX Not applicable.

[1] Disparities between recorded exports of source countries and totals of recorded imports of recipient countries are generally due to: (1) time lag between shipment and receipt, and (2) the fact that the latter totals are incomplete, representing only the imports of the nations listed in the column heads and in footnote 7. Only in the cases of India (where recorded exports exceed recorded receipts by 4,741,000 tons) and Norway (where recorded exports total 2,180,000 tons less than reported receipts) are there indications that there may be an error in available information.

[2] Source: Official trade returns of countries listed, except for Angola, Liberia, and Mauritania (data from Annales des Mines, October 1971, pp. 43–72) and Australia and India (data from Government publications of the respective countries other than official trade returns).

[3] Source: Statistical Office of the United Nations. 1969 World Trade Annual V. I, Walker and Company, New York 1970, pp. 161–162, except for data on Czechoslovakia, East Germany, Hungary, Poland, and Romania, which are from official trade returns of the respective countries, supplemented by export data from the U.S.S.R.

[4] Data are for year ending August 31, 1969.

[5] Includes exports from Swaziland.

[6] Recorded 1969 export total is a total of exports from the following countries (exports for each follow the country name in parentheses in thousand tons): Austria (4); Belgium-Luxembourg (66); Bolivia (2); China, mainland (15—Japanese imports only); Denmark (24); Finland (226); Germany, West (17); Ghana (1); Hong Kong (166); Korea, North (544—Japanese imports only); Korea, Republic of (South) (673); Morocco (868); Netherlands (8); Poland (2); Sudan (9); Thailand (497); Tunisia (567); Turkey (9); Yugoslavia (154). Recorded imports of principal recipient countries include receipts from the foregoing list of countries as well as receipts credited to the following countries for which either: 1) no iron ore export was recorded in 1969 trade returns; or 2) trade returns for 1969 were not available: Iran, Libya, Mozamdia, Nigeria, Senegal.

[7] Includes the following countries with recorded total imports as indicated in parentheses in thousand tons: Austria (1,605); Finland (1,207); East Germany (2,464); Greece (471); Norway (47); Portugal (148); Spain (979); Sweden (47); Switzerland (29); Yugoslavia (264).

[8] Reported U.S.S.R. exports to Romania.

[9] Figure derived by difference between total reported Romanian import and U.S.S.R. export to Romania; origin unreported.

Table 52.—Major world trade in steel ingots and semimanufactures in 1969, by area

(Thousand metric tons)

Exporting country and area	Destinations [1]						
	North America			Europe			
	Canada	United States	Latin America [2]	European Economic Community	European Free Trade Association	Other non-Communist	Communist [3]
North America:							
Canada	XX	476.5	31.2	11.4	32.8	3.6	--
United States	919.1	XX	1,081.7	1,081.7	359.1	433.8	111.2
Total	919.1	476.5	1,112.9	1,093.1	391.9	437.4	111.2
Europe:							
European Economic Community:							
Belgium-Luxembourg	119.0	1,314.0	285.0	8,649.0	1,078.0	396.0	86.0
France	71.6	930.9	199.0	2,986.9	1,011.0	239.4	230.2
Germany, West	169.0	1,693.6	367.6	5,548.9	2,099.5	553.2	1,219.7
Italy	8.4	132.0	88.7	617.4	210.4	98.9	226.6
Netherlands	.2	364.3	36.2	1,676.1	847.2	87.0	44.7
Subtotal	368.2	4,434.8	976.5	19,478.3	5,246.1	1,374.5	1,807.2
European Free Trade Association:							
Austria	13.6	17.3	15.6	821.1	267.0	34.9	311.7
Denmark	--	--	.5	102.7	134.4	5.9	1.4
Norway	.1	2.2	3.2	122.7	306.5	32.6	2.0
Portugal	--	3.3	(6)	2.1	6.2	6.5	--
Sweden	15.9	78.4	26.6	458.0	593.1	121.7	91.7
Switzerland [7]	1.5	10.7	.9	56.3	31.0	4.3	.7
United Kingdom	138.0	786.6	259.2	515.6	577.5	599.0	94.3
Subtotal	169.1	898.5	306.0	2,078.5	1,915.7	804.9	501.8
Other non-Communist Europe:							
Finland	.1	3.0	1.3	69.2	164.9	1.4	.4
Greece	--	5.3	(6)	19.6	12.6	22.6	113.0
Spain	(6)	11.1	38.3	61.2	39.4	1.7	9.3
Subtotal	.1	19.4	39.6	150.0	216.9	25.7	122.7
European Communist Countries:							
Bulgaria	--	--	6.2	172.7	78.0	10.0	238.6
Czechoslovakia	101.6	23.8	7.2	584.7	397.4	83.3	962.1
Germany, East [8]	--	2.0	--	8.8	11.4	12.3	70.6
Hungary	--	--	(6)	186.4	163.5	43.0	243.7
Poland	11.9	125.8	139.7	127.3	121.4	22.1	777.4
Romania	--	--	7.5	205.6	9.3	5.0	621.7
U.S.S.R.	11.3	--	190.3	57.6	134.4	243.8	5,549.9
Yugoslavia	--	2.6	7.9	87.1	9.1	10.4	157.4

Subtotal	124.8	154.2	358.8	1,430.2	924.5	429.9	8,621.4
Total	662.2	5,506.9	1,680.9	23,137.0	8,303.2	2,635.0	11,053.1
Africa: South Africa, Republic of	2.3	42.1	39.0	45.6	18.6	44.9	--
South Asia and Far East:							
India [9]	.1	45.2	.3	9.8	21.9	8.5	186.1
Japan	400.0	5,272.0	1,445.0	1,037.0	139.0	542.0	407.0
Total	400.1	5,317.2	1,445.3	1,046.8	160.9	550.5	593.1
Oceania: Australia	17.4	132.4	9.8	6.6	125.2	52.9	--
Grand total	2,001.1	11,475.1	4,287.9	25,329.1	8,999.8	3,720.7	11,757.4

Exporting country and area	Destinations [1]							
	Africa	Near East [4]	South Asia and Far East			Oceania	Unallocated	Total
			Japan	Other non-Communist	Communist [5]			
North America:								
Canada	1.0	10.8	10.2	1.6	--	10.5	--	589.6
United States	90.5	56.0	7.0	616.6	--	17.2	--	4,773.9
Total	91.5	66.8	17.2	618.2	--	27.7	--	5,363.5
Europe:								
European Economic Community:								
Belgium-Luxembourg	307.0	221.0	--	110.0	9.0	8.0	--	12,582.0
France	604.4	196.2	0.1	51.3	39.4	22.0	0.2	6,582.6
Germany, West	347.0	277.9	2.9	444.4	1.5	10.6	--	12,735.8
Italy	180.9	172.5	--	52.7	59.8	21.2	10.3	1,879.8
Netherlands	132.0	27.2	.3	15.7	.1	.3	--	3,231.3
Subtotal	1,571.3	894.8	3.3	674.1	109.8	62.1	10.5	37,011.5
European Free Trade Association:								
Austria	7.5	28.9	.4	3.7	4.9	2.3	3.1	1,532.0
Denmark	.4	.9	(6)	.1	--	(6)	--	246.3
Norway	1.4	2.1	.4	1.2	--	--	--	474.4
Portugal	42.0	.7	--	.1	--	--	--	60.9
Sweden	13.0	8.2	2.7	8.7	8.8	6.1	--	1,432.9
Switzerland [7]	.8	1.3	--	.1	--	.2	4.9	112.7
United Kingdom	241.0	262.1	.7	324.8	37.0	139.4	.1	3,975.3
Subtotal	306.1	304.2	4.2	338.7	50.7	148.0	8.1	7,834.5
Other non-Communist Europe:								
Finland	--	2.2	--	2.1	--	--	--	244.6
Greece	7.7	4.1	--	--	--	--	.1	185.0
Spain	7.1	1.1	--	.1	--	.4	--	169.7
Subtotal	14.8	7.4	--	2.2	--	.4	.1	599.3

See footnotes at end of table.

Table 52.—Major world trade in steel ingots and semimanufactures in 1969, by areas—Continued

(Thousand metric tons)

Exporting country and area	Destinations [1]							
	Africa	Near East [4]	South Asia and Far East			Oceania	Unallocated	Total
			Japan	Other non-Communist	Communist [5]			
European Communist Countries:								
Bulgaria	7.2	58.2	18.2	.3	3.0	--	--	592.4
Czechoslovakia	25.5	204.6	--	22.8	41.8	--	--	2,454.8
Germany, East [8]	--	--	--	--	--	--	--	105.1
Hungary	26.5	158.5	--	32.8	7.0	--	--	861.4
Poland	46.0	24.6	--	17.5	23.9	--	--	1,437.6
Romania	.1	70.3	--	4.7	18.8	--	--	943.0
U.S.S.R.	136.9	401.9	--	149.5	73.9	--	36.1	6,985.6
Yugoslavia	2.6	12.7	--	1.1	1.5	--	--	292.4
Subtotal	244.8	930.8	18.2	228.7	169.9	--	36.1	13,672.3
Total	2,137.0	2,137.2	25.7	1,248.7	330.4	210.5	54.8	59,117.6
Africa: South Africa, Republic of	--	--	6.8	5.6	--	.6	215.9	421.4
South Asia and Far East:								
India [9]	55.2	320.2	12.1	181.3	--	12.1	.2	853.0
Japan	528.0	651.0	XX	3,455.0	1,255.0	417.0	--	15,548.0
Subtotal	583.2	971.2	12.1	3,636.3	1,255.0	429.1	.2	16,401.0
Oceania: Australia	21.2	5.7	98.2	405.1	.4	246.2	6.9	1,128.0
Grand total	2,832.9	3,180.9	160.0	5,908.9	1,585.8	914.1	277.8	82,431.5

XX Not applicable.

[1] Because some countries do not report destinations for a portion of exports (see unallocated column), figures given for distribution of those countries' exports by continental area are not exactly correct. However, such unallocated quantities are sizable only in the case of the U.S.S.R. and the Republic of South Africa.

[2] All Western Hemisphere areas except United States and Canada.

[3] Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, U.S.S.R., and Yugoslavia.

[4] Bahrain, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Muscat and Oman, Qatar, Saudi Arabia, Southern Yemen (formerly Aden), Syria, Trucial States, Turkey, and Yemen.

[5] Consists of China (mainland), North Korea, and North Vietnam; Mongolia is included under other non-Communist South Asia and Far East, owing to its inseparability from this group in source.

[6] Less than 50 tons.

[7] Source: Statistical Office of the United Nations. 1969 World Trade Annual. V. III, Walker and Co., New York, 1971, 494 pp.

[8] Partial figure derived from import data of partner countries. Source: Statistical Office of the United Nations. 1969 Supplement to the World Trade Annual. V. I. Walker and Co., New York, 1970, p. 263.

[9] Year beginning April 1, 1969 and ending March 31, 1970.

Source: Except where otherwise noted: United Nations Economic Commission for Europe. Statistics of World Trade in Steel. 1969, 59 pp.

Table 53.—World trade of lead ores and concentrates [1]

(Thousand metric tons of contained metal unless otherwise specified)

Destination	Exporting regions								
	North America	Latin America [2]	Western Europe [3]	Eastern Europe [4]	Africa	Asia	Oceania	Origin not reported by continent	Total
1969									
United States	44.0	36.3	--	--	0.3	--	18.4	--	99.0
Western Europe:									
Belgium-Luxembourg [5]	23.0	32.3	14.7	--	--	--	--	14.6	84.6
France	--	9.9	33.3	--	25.0	--	3.5	--	71.7
Germany, West [6]	20.7	21.0	61.9	4.6	7.6	0.5	2.9	--	119.2
United Kingdom	7.0	5.6	9.2	--	1.8	--	17.8	12.2	53.6
Other [7]	--	5.9	10.5	--	10.4	--	--	--	26.8
Total	50.7	74.7	129.6	4.6	44.8	.5	24.2	26.8	355.9
Japan	36.0	38.1	--	--	.8	14.4	29.0	1.1	119.4
Grand total	130.7	149.1	129.6	4.6	45.9	14.9	71.6	27.9	574.3
1970									
United States	37.3	37.9	--	--	(8)	--	26.6	--	101.8
Western Europe:									
Belgium-Luxembourg [9]	--	32.5	41.0	--	--	--	--	37.3	110.8
France [10]	--	4.8	35.0	--	30.8	--	6.9	--	77.5
Germany, West	41.6	28.9	63.2	8.7	11.0	1.2	5.7	--	160.3
United Kingdom	2.6	14.6	4.7	--	4.4	--	9.2	--	35.5
Other [11]	9.4	--	12.2	--	5.8	--	--	2.1	29.5
Total	53.6	80.8	156.1	8.7	52.0	1.2	21.8	39.4	413.6
Japan	78.8	21.5	--	--	1.1	17.1	16.8	1.3	136.6
Grand total	169.7	140.2	156.1	8.7	53.1	18.3	65.2	40.7	652.0

[1] Imports of countries other than those listed believed small.
[2] Includes Mexico.
[3] Includes Yugoslavia.
[4] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.
[5] Data are for gross weight of ore, January through October.
[6] January through November.
[8] Less than 50 tons.
[9] Gross weight of ore, January through September.
[10] January through October.
[11] Includes Italy gross weight of ore, January through September and Austria for January through September.

Source: Monthly Bulletin of Statistics of the International Lead and Zinc Study Group. Lead and Zinc Statistics. April 1970, v. 10, No. 4, p. 24; April 1971, v. 11, No. 4, p. 24.

Table 54.—Major world trade in lead bullion and refined lead [1]

(Thousand metric tons)

Destination	Exporting regions								
	North America	Latin America [2]	Western Europe [3]	Eastern Europe [4]	Africa	Asia	Oceania	Origin not reported by continent	Total [5]
1969									
United States	42.1	104.0	40.9	--	11.4	--	55.1	0.9	254.4
Western Europe:									
Belgium-Luxembourg [6]	(7)	.3	6.8	1.6	--	0.5	--	1.8	11.0
France [8]	--	1.5	26.7	1.0	27.6	--	--	--	56.8
Germany, West	12.0	1.8	65.7	1.7	2.0	10.9	14.3	.8	109.2
Italy [6]	--	7.0	5.6	5.8	14.3	--	--	14.8	47.5
Netherlands	--	7.8	22.1	7.2	1.1	.2	1.1	.1	39.6
Switzerland	2.5	3.1	16.0	.8	.5	2.6	.5	(7)	26.0
United Kingdom	43.4	--	.7	.2	12.7	--	172.1	.1	229.2
Other [9]	3.8	5.2	26.1	7.5	5.4	--	--	.8	48.8
Total	61.7	26.7	169.7	25.8	63.6	14.2	188.0	18.4	568.1
Japan	1.3	--	--	--	2.6	1.1	1.5	1.8	8.3
Grand total	105.1	130.7	210.6	25.8	77.6	15.3	244.6	21.1	830.8
1970									
United States	57.9	82.6	22.1	--	11.9	--	46.9	.7	222.1
Western Europe:									
Belgium-Luxembourg [6]	.3	1.4	9.4	--	--	--	--	1.6	12.7
France	--	.5	24.0	.6	22.6	--	--	--	47.7
Germany, West	4.3	2.2	80.6	.7	.6	17.3	16.5	.4	122.6
Italy	.2	24.5	36.6	9.1	33.4	--	--	16.8	120.6
Netherlands	.1	9.2	27.4	1.9	.8	.3	10.5	1.0	51.2
Switzerland	3.4	2.3	18.7	.1	.3	--	1.2	--	26.0
United Kingdom	41.2	--	.3	--	7.7	--	206.0	.2	255.4
Other [10]	.7	4.6	35.7	7.8	6.4	--	--	.2	55.4
Total	50.2	44.7	232.7	20.2	71.8	17.6	234.2	20.2	691.6
Japan	.2	--	--	--	.2	.6	--	.6	1.6
Grand total	108.3	127.3	254.8	20.2	83.9	18.2	281.1	21.5	915.3

[1] Imports of countries other than those listed are generally small individually (except for Eastern European nations listed in footnote 4) but in aggregate apparently total about 125,000 tons per year. Total lead imports by East European countries including trade between the countries of this group, apparently totals 70,000 tons or more per year.
[2] Includes Mexico.
[3] Includes Yugoslavia.
[4] Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.
[5] Reported totals.
[6] January through September.
[7] Less than 50 tons.
[8] January through November.
[9] Includes Austria, January through September, Ireland, January through November; and Denmark, Finland, Norway, and Sweden, January through December.
[10] Includes Austria, January through September; Norway, January through November; and Denmark, Finland, Ireland, and Sweden, January through December.
Source: Monthly Bulletin of the International Lead and Zinc Statistics. May 1970, v. 10, No. 4, pp. 24–25; May 1971, v. 11, No. 4, pp. 24–25.

Table 55.—World trade of zinc ores and concentrates [1]

(Thousand metric tons of contained metal unless otherwise specified)

Destination	Exporting regions								
	North America	Latin America [2]	Western Europe [3]	Eastern Europe [4]	Africa	Asia	Oceania	Origin not reported by continent	Total
1969									
United States	333.4	198.5	--	--	11.3	--	2.7	0.4	546.3
Western Europe:									
Belgium-Luxembourg [5]	219.3	--	106.0	--	47.5	--	--	52.9	425.7
France	56.6	42.2	79.8	--	41.3	0.2	--	7.7	227.8
Germany, West [6]	90.2	1.8	49.2	--	5.2	1.0	9.8	--	157.2
United Kingdom	19.2	3.7	15.8	--	--	--	95.7	30.4	164.8
Other [7]	29.9	.8	74.1	--	--	--	8.1	--	112.9
Total	415.2	48.5	324.9	--	94.0	1.2	113.6	91.0	1,088.4
Japan	39.2	247.3	--	--	--	36.2	70.1	42.1	434.9
Grand total	787.8	494.3	324.9	--	105.3	37.4	186.4	133.5	2,069.6
1970									
United States	288.5	181.8	--	--	4.6	--	2.1	([8])	477.0
Western Europe:									
Belgium-Luxembourg [5]	290.8	--	19.3	--	33.9	--	--	98.6	442.6
France [6]	52.8	41.6	80.5	--	16.1	.8	--	--	191.8
Germany, West	94.3	8.3	54.0	4.8	5.3	3.7	6.8	--	177.2
United Kingdom	26.2	6.4	12.5	--	--	--	103.3	5.9	154.3
Other [9]	33.4	.3	69.7	--	1.7	--	14.8	--	119.9
Total	497.5	56.6	236.0	4.8	57.0	4.5	124.9	104.5	1,085.8
Japan	126.4	164.5	.5	--	2.0	73.5	87.9	2.3	457.1
Grand total	912.4	402.9	236.5	4.8	63.6	78.0	214.9	106.8	2,019.9

[1] Imports of countries other than those listed believed small.
[2] Includes Mexico.
[3] Includes Yugoslavia.
[4] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.
[5] Data are for gross weight of ore, January through September.
[6] January through October.
[7] Includes the Netherlands and Norway, January through December; and Austria, January through September.
[8] Less than 50 tons.
[9] Includes Austria, January through September; Norway, January through November; and the Netherlands, January through December.

Source: Monthly Bulletin of the International Lead and Zinc Study Group, Lead and Zinc Statistics. April 1970, v. 11, No. 4, p. 24.

Table 56.—Major world trade in refined zinc [1]

(Thousand metric tons)

Destination	Exporting regions: North America	Latin America [2]	Western Europe [3]	Eastern Europe [4]	Africa	Asia	Oceania	Origin not reported by continent	Total [5]
1969									
United States	134.9	38.4	21.4	8.6	9.3	--	31.1	50.8	294.5
Western Europe:									
Belgium-Luxembourg [6]	--	--	1.3	--	15.1	5.5	4.3	6.6	32.8
France [7]	.7	.1	15.0	4.4	2.8	.1	--	.5	23.6
Germany, West	11.6	2.4	120.5	14.0	21.2	--	5.4	--	175.1
Italy [7]	2.3	1.0	15.9	2.6	3.1	--	2.0	2.9	29.8
Netherlands	--	--	4.5	3.0	2.2	5.8	.9	--	16.4
Sweden	4.8	.1	24.5	9.7	--	--	--	--	39.1
Switzerland	.3	.1	17.2	2.9	3.9	4.9	1.8	(8)	31.1
United Kingdom	99.2	2.4	17.5	20.9	3.3	2.3	16.5	1.2	163.3
Other [9]	--	.2	23.0	5.1	2.5	.1	--	.3	31.3
Total	118.9	6.3	239.4	62.6	54.1	18.7	30.9	11.5	542.5
Hong Kong	1.7	--	.3	--	--	1.1	2.2	1.3	6.6
Japan	2.2	.1	--	--	.1	4.0	--	.7	7.1
Grand total	257.7	44.8	261.1	71.2	63.5	23.8	64.2	64.3	850.7
1970									
United States	109.4	35.7	27.1	7.0	9.2	--	27.5	29.6	245.5
Western Europe:									
Belgium-Luxembourg [6]	1.7	--	1.7	--	9.6	1.9	4.2	3.8	22.9
France	4.3	--	14.7	5.1	1.8	--	--	--	25.9
Germany, West	10.1	7.1	110.8	7.3	8.5	.9	1.1	--	145.8
Italy	6.0	--	23.5	4.6	6.3	--	.9	2.7	44.0
Netherlands	--	.1	5.1	5.7	--	3.1	.1	--	14.1
Sweden	--	--	28.6	5.1	--	5.3	--	--	34.0
Switzerland	.5	.1	20.7	1.7	2.4	1.4	.5	(8)	27.3
United Kingdom	101.0	5.3	15.6	17.0	.3	2.3	18.5	.7	160.7
Other [10]	.4	.2	16.0	5.0	2.1	--	--	.5	24.2
Total	124.0	12.8	231.7	51.5	31.0	14.9	25.3	7.7	498.9
Hong Kong [7]	2.9	--	.3	--	--	.3	3.1	1.3	7.9
Japan	7.9	1.5	--	.6	.8	6.8	4.8	--	21.6
Grand total	244.2	50.0	259.1	59.1	41.0	22.0	60.7	38.6	773.9

[1] Imports of countries other than those listed are generally less than those of listed countries individually, except for the following countries (total 1969 imports of each given parenthetically, in thousand tons): India (30.9); Brazil (55.7); Republic of South Africa (8.5); U.S.S.R. (50.1); Hungary (20.2); Philippines (21.4); Thailand (18.1); and Taiwan (10.7). The aggregate tonnage of imports for nations not listed in body of table nor in the foregoing list is estimated to be about 100,000 metric tons.

[2] Includes Mexico.

[3] Includes Yugoslavia.

[4] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and U.S.S.R.

[5] Reported totals; detail may not add horizontally owing to rounding.

[6] January through September.

[7] January through November.

[8] Less than 50 tons.

[9] Includes Austria, January through September; Ireland, January through November; Denmark and Finland, January through December.

[10] Includes Austria, January through September; and Denmark, Finland, and Ireland, January through December.

Source: Monthly Bulletin of the International Lead and Zinc Study Group, Lead and Zinc Statistics. May 1970, v. 10, No. 5, pp. 26–27; May 1971, v. 11, No. 5, pp. 26–27.

Table 57.—World movement of solid fuels in 1969 [1]

(Thousand metric tons, standard coal equivalent)

Source area	Destinations										
	North America [2]	Caribbean America [3]	Other America [4]	Western Europe [5]	Africa	Near East	Far East	Oceania	Other countries [6]	Destination unspecified [7]	World [8]
North America [2]	16,230	790	2,730	13,940	--	--	20,480	5	250	30	54,450
Western Europe [5]	65	100	110	38,590	315	10	20	10	1,290	120	40,630
Africa	--	--	--	560	1,570	--	350	10	10	100	2,585
Far East	--	--	--	--	--	--	660	--	--	--	660
Oceania	--	--	70	80	--	--	15,900	290	--	10	16,360
Other countries [6]	--	140	170	25,160	670	--	5,675	--	33,900	510	66,190
Total [8]	16,295	1,040	3,035	78,410	2,550	20	43,140	320	35,450	770	181,030

[1] Data based on the general trade system; lignite briquets are reduced to standard coal equivalent before inclusion; bunker loadings are excluded.
[2] Bermuda, Canada, Greenland, St. Pierre, and the United States.
[3] Mexico, all areas of Central America, all Islands of the Caribbean, Colombia, and Venezuela.
[4] All South America except Colombia and Venezuela.
[5] All non-Communist nations of Europe and Yugoslavia.
[6] Chiefly the Communist nations of Europe and Asia, but apparently including some other countries not identified separately.
[7] As reported in source.
[8] Reported totals; detail does not add to listed total as shown because of: (1) inclusion of quantities shipped to or received from areas not listed separately or not identified in original sources and (2) rounding.

Source: Statistical Office of the United Nations. World Energy Supplies 1966–69. Series J, No. 14, New York, 1971, pp. 38–43.

Table 58.—World movement of crude petroleum in 1969 [1]

(Thousand metric tons)

Source area [2]	Destinations										
	North America	Caribbean America	Other America	Western Europe	Africa	Near East	Far East	Oceania	Other countries	Destination unspecified	World [3]
North America	26,670	30	--	60	--	--	100	--	--	--	26,860
Caribbean America	37,470	66,540	6,960	24,645	250	--	500	--	--	40	136,405
Other America	920	100	550	160	--	--	20	--	--	--	1,750
Western Europe	90	--	--	1,920	--	--	--	--	--	--	2,010
Africa	13,230	7,930	3,670	202,070	2,940	680	1,110	350	3,360	1,200	236,540
Near East	15,830	3,160	10,510	274,410	14,130	22,660	174,950	15,620	1,120	6,960	539,350
Far East	4,460	--	--	130	--	--	24,625	5,700	--	--	35,220
Other Countries	--	4,300	180	23,840	1,960	--	550	--	32,625	--	63,995
Total [3]	98,680	82,350	21,870	527,230	19,280	23,340	201,855	21,670	37,105	8,545	1,042,140

[1] Data are based on the general trade system.
[2] For details on countries included in each area, see footnotes to table 52.
[3] Reported totals; detail may not add to totals shown because of: (1) inclusion in totals of quantities shipped to or received from not listed separately or not identified in original sources and (2) rounding.

Source: Statistical Office of the United Nations. World Energy Supplies 1966–69. Series J, No. 14, New York, 1971, pp. 78–84.

Table 59.—Refined petroleum fuel trade, by continental areas [1]

(Million metric tons)

Continental area [2]	Exports		Imports		Bunkers	
	1968	1969	1968	1969	1968	1969
North America	6.96	7.26	87.23	96.48	20.12	20.36
Caribbean America	112.52	118.04	13.55	13.78	14.00	13.86
Other America	1.09	0.28	5.11	4.79	1.33	1.29
Western Europe	78.30	89.49	103.60	106.79	41.92	45.53
Eastern Europe	36.37	35.54	7.01	6.32	NA	NA
Africa	4.75	4.26	12.42	13.36	8.01	7.56
Near East	50.44	55.98	2.69	3.74	17.49	17.49
Far East	20.17	19.74	40.65	42.72	22.40	23.61
Oceania	1.15	.86	3.69	4.42	4.21	3.69
Not specified [3]	--	--	1.32	1.34	.05	.05
Total	311.75	331.45	277.27	293.74	129.53	133.44

NA Not available.

[1] Figures given are for fuel commodities only, excluding lubricants and other refinery products not normally used as energy sources. Apparent discrepancies between export, import, and bunker totals evidently result from quantities of material en route at yearend, from incomplete data, and from differing practices from country to country in the method of reporting bunkering materials.

[2] Continental areas are the same as those used in table 52 except that Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the U.S.S.R. are reported under the group term Eastern Europe.

[3] Derived figure; difference between listed detail and reported total.

Source: Statistical Office of the United Nations. World Energy Supplies 1966–69. Series J, No. 14, New York, 1971, pp. 56–77.