Minerals in the World Economy

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In 1972, virtually all phases of world mineral industrial activity registered gains in performance over the levels of 1971, as the continually expanding population of this planet persisted in its quest for an ever-higher standard of living. As in all recent years, mineral industry activity expansion was most pronounced in the commodity area of energy materials; this growth reflected not only the world's expanded energy requirements necessitated by intensified industrial activity, but also continually higher levels of energy use for what might best be described as human comfort, convenience, and pleasure, particularly in the world's developed countries.

Overall world total industrial output, as measured by the United Nations' index of industrial production advanced by nearly 6.7% in 1972 over the 1971 level.[2] This growth rate exceeded the increase recorded for the extractive sector of the minerals industry (up only 2.6% in aggregate), but was lower than that registered for processing of metals (up 7.2%) or for the production of petroleum, coal and chemical products (up 9.4%). It is worthy of note that within the extractive sector of the minerals industry alone, the crude petroleum and natural gas component recorded a gain of 4.0%, far greater than the 2.6% average increase for the extractive sector, and as such was responsible for the entire increase. In contrast, the metal extraction component index was on a par with that of 1971, while the third major extractive industry component, coal production, registered a 1.9% decline.

Despite the continued gains in production of energy materials, there were localized instances of energy shortages (specifically, of petroleum) which pointed to the precarious balance between world supply and demand. Despite these relatively minor 1972 problems and evidences of potentially greater problems in future years, the pressures for economic and social advances drove fuel material consumptions higher in most world areas, leading to an even more precarious balance, with the developed nations dependence upon less developed, crude oil-rich nations increasing, thereby setting the stage for the international oil crisis of 1973.

Available partial and preliminary data on world trade in mineral commodities suggests that the total value of these materials moving in international trade almost assuredly topped the $100,000 million level in 1972. A part of the increase, to be sure, was the result of virtual worldwide inflation and the devaluation of the U.S. dollar relative to some foreign currencies. However, a substantial gain in the physical volume of material moved also played a significant role. In the case of crude oil, the overwhelmingly dominant single mineral commodity traded (on both the tonnage and value basis), figures available to the Bureau of Mines indicate that exports exceeded 10,409 million barrels (about 1,426 million metric tons) in 1972, an advance of 11.2% over the 1971 level.[3] Similarly, petroleum refinery product exports apparently advanced by over 5.7% to more than 3,132 million barrels (almost 450 million tons).

From the viewpoint of consumption of mineral materials, 1972 was a year of increases rivaling if not exceeding output of crude minerals, resulting in some stock drawdowns. Considering energy materials, although available data were insufficient to

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[2] The United Nations' index of world industrial production for 1972, as reported in the United Nations Monthly Bulletin of Statistics for August 1973 stood at 176 (base 1963=100), 11 index points higher, or 6.7% above the 1971 level recorded in the same source.

[3] 1971 level was over 9,361 million barrels, or about 1,282 million tons, a figure 179 million tons higher than that reported in the 1971 edition of this chapter.

measure the growth in consumption in 1972 relative to that of 1971, available information indicates that the 1970 to 1971 growth rate of 4.0%[4] was significantly exceeded, with world energy use reaching a level of nearly 7,600 million metric tons of standard coal equivalent. World consumption of both iron ore and steel scrap increased in 1972 in contrast with declines for both between 1970 and 1971, with iron ore consumption still falling short of the 1970 record level, but scrap consumption reaching a new high. In the case of major nonferrous metals (aluminum, copper, lead, zinc, and tin), world consumption in aggregate advanced by an estimated 8.3% in 1972 (6.2% between 1970 and 1971), with aluminum again accounting for the greatest increase, both tonnagewise and percentagewise. However, the growth rate for aluminum use was markedly lower than that between 1970 and 1971, while copper, lead, and zinc recorded larger gains between 1971 and 1972 than in the 1970 to 1971 period.

Price rises were noted in fuels, although these, for the most part, were more in line with the general inflationary trends and with rising production costs rather than as a result of efforts to increase profit margins or because of actual materials shortages. Among the major nonferrous metals, the average 1972 annual prices for aluminum and for copper actually were lower than those of 1971 on major metal markets, while lead, zinc, tin, and silver recorded gains.

The influence upon mineral industry activities of the principal areas of international hostilities in 1972 was outwardly somewhat less than in the previous year. In Southeast Asia, despite occasional flareups of military activity, there was a continuing diminuation of the role of U.S. combat forces, with a concomitant reduction in the fuel requirements to support the war. It might be noted that for this area, the virtual destruction of the single refinery in the Khmer Republic was a rather significant event, although by world standards, this was of little importance. In the Near East, despite the limitation of military activities to rather minor border skirmishes of short duration, the Suez Canal remained closed, with a continuing influence upon the price of mineral commodities, most notably oil, on the European markets.

The brief period of open warfare between Pakistan and India at the very end of 1971 over the question of independence for the former Eastern Wing of Pakistan (now Bangladesh), had little influence on world mineral supplies except for a short (and relatively unimportant, by world standards) period of intensified fuel demands by the military forces of these nations. Moreover, the long range effect of this partition of one state into two seemingly would have little influence on mineral supplies. Neither the new, smaller Pakistan (formerly West Pakistan) nor newly separated Bangladesh could be regarded as significant mineral producers at present. Looking to resources potential, former West Pakistan has some promise as a natural gas supplier, despite obvious transport difficulties, and may have some nonferrous metal possibilities, though these are inferred, rather than known.

[4] Calculated from United Nations World Energy Supplies 1968-71. Statistical Papers, Series J, No. 16, New York, 1973, pp. 6-9.

PRODUCTION

The value of 1972 world crude mineral production was estimated at $109,000 million, exceeding the $100,000 million level for the second straight year. This is $6,900 million over the previous years' estimated total, as indicated in the following tabulation:

Year	Value of 53 major crude mineral commodities [1]	Value of all crude mineral commodities [2]
1950	37,224	42,100
1963	67,042	75,800
1968	77,908	88,000
1969	83,985	94,900
1970	87,857	99,300
1971	91,168	103,000
1972	97,284	109,900

[1] For details on commodities included see 1970 edition of this chapter, table 5. Figures for 1950–68 are those reported in Annales des Mines, No. 1, January 1971, p. 14; figures for subsequent years are extrapolated from the United Nations' index of world extractive industry output (see table 1 of this chapter).

[2] Data are extrapolated from those in first column to compensate for commodities not included in original source study. For details on the basis for extrapolation, see the 1970 edition of this chapter, under "Value of World Mineral Production."

From the foreging tabulation, it is evident that the growth rate of mineral output value considerably increased in 1972 over the rate prevailing during 1969–71.

The value added by processing of crude mineral commodities in mineral industry plants of various nations is estimated at $240,000 million for 1972, and is considered a low estimate because of the lack of complete data for all crude mineral commodities processed.

PRODUCTION INDEX PATTERNS

United Nations indexes for world mineral production (excluding that of Communist Asia) are given in table 1, and include index figures for major sectors of the industry and selected major geographic areas.

The data given, which are based on production levels in 1963, again show an increase in overall mineral output for 1972. Comparison of the growth rate for 1972 with 1971 also shows an increase over that taking place between 1971 and 1970. The increases in both production level and rate of growth are due mainly to output of the processing industries as a whole, with chemicals, petroleum, and coal products having the greatest influence.

Examination of table 1 on the basis of general industry sectors indicates considerable variation in performance. Metals repeated their performance of the previous year, but coal declined two index points in 1972. However, with regard to percentage increase, only base metal processing and the processing of chemicals, petroleum, and coal products recorded increases exceeding that of overall industrial production. Production of petroleum and natural gas was again below the growth rate for industry as a whole in 1972, while nonmetallic minerals, one of the higher performing sectors the previous year, increased 5.5% compared with an overall industrial production increase of 6.7% over 1971 levels. The processing of chemicals, petroleum, and coal products increased by 9.4% over the 1971 level.

Analysis of overall mineral industry production for 1972 by quarters indicates a moderate increase between the last quarter of 1971 and the first quarter of 1972 which continued through the second quarter, decreased moderately in the third quarter, and ended with a substantial gain (11 index points) in the last quarter. The extractive industry as a whole showed a modest gain between the last quarter of 1971 and through the first half of 1972, declining slightly in the third quarter and rising moderately in the fourth quarter. This pattern was generally the same for the subdivisions metal mining and coal extraction. In contrast, production of crude petroleum and natural gas jumped substantially in the first quarter of 1972, declined moderately in the second quarter, increased by one index point in the third, then climbed seven index points in the last quarter, rounding out the year at 184, up 4% over 1971. Among the several processing industry sectors covered in table 1, base metal processing climbed sharply from the final quarter of 1971 through the second quarter of 1972, registering a gain of 16 index points in that time period. That sector then declined moderately in the third quarter, but rose again in the fourth quarter to a new high. As in the previous year, nonmetallic minerals declined in the first quarter of 1972 with respect to the last quarter of 1971, rose sharply in the second quarter, declined marginally at the end of the third quarter, and then rose slightly in the final quarter. The index of chemicals, petroleum, and coal products production indicates that the pattern set by that sector in recent years remained in effect, with consistent gains for consecutive quarters except for a slight decline in the third quarter.

As in the past year, examination of United Nations' world production indexes by regions indicates that the Communist European countries again increased their output in all sectors in 1972. This is in contrast with non-Communist nations which showed declines in metal mining and coal extraction, with all other sectors advancing in output. Variations among nations of the non-Communist world were considerable, with metal output falling off modestly for industrialized countries, but increasing moderately from a higher base for less industrialized countries. Within the group of industrialized nations, countries of the European Economic Community decreased their production of metals for the fourth straight year, while Australia and New Zealand continued their steady increase. In the case of coal, non-Communist countries again exhibited considerable variation in production, but for crude petroleum and

natural gas, only Latin America showed a declined from 1971 to 1972, with all other non-Communist world countries advancing. In the processing industries, 1972 was a year of advance in production levels for all mineral industry sectors and regions indicated, but with varying growth rates.

In reviewing the production indexes, it should be noted that growth rates alone do not give an accurate indication of a given area or country's contribution to total production. Specifically, in the case of the Communist areas which have generally shown consistently higher growth rates than non-Communist regions, it should be remembered that these output levels are from a lower base level in terms of quantitative output of most commodities. In other cases, rates of growth shown by some regions may be almost entirely the result of expansion of output in certain industries, as is the case with iron ore and bauxite in Australia.

QUANTITY COMMODITY OUTPUT

Total world output of a number of mineral commodities is summarized in table 2 for the years 1970-72. Regional distribution of output of these commodities for 1972 in terms of percent of world total is given in table 3. The statistical summary at the end of this chapter includes world output of selected major commodities by principal producing countries for 1970-72.

Nonfuel Mineral Commodities.—Of the 39 metallic mineral commodities listed in table 2, 29 registered production increases in 1972 compared with 1971 results, and 10 showed declines.

Among the 23 industrial nonmetallic mineral commodities for which output data are listed in table 2, 16 showed higher production levels in 1972 than in 1971, and 7 registered declines.

Tables 32 to 50 in the statistical summary section of this chapter give output levels of selected major nonfuel mineral commodities (metals and nonmetals) by major producers for 1970-72.

Mineral Fuel Commodities.—In 1972, the estimated world production of energy from mineral fuel commodities attained the highest level yet recorded in terms of standard coal equivalent (SCE). Expanded production of major mineral commodities [5] resulted in a world energy output totaling 7,595 million tons SCE in 1972, compared with 7,261 million tons SCE in 1971 and 6,991 million tons SCE in 1970. Record world production levels were again posted for each of the major commercial energy sources listed in table 2. The percentage distribution of each major energy source (coal, petroleum, and natural gas) along with hydro-geothermal-nuclear power for the period 1970-72 is given in the following tabulation:

Energy source	Share of total energy production (percent)		
	1970 [1]	1971 [1]	1972 [2]
Coal (including lignite)	34.3	33.0	32.5
Petroleum	43.0	43.7	44.1
Natural gas	20.5	21.0	21.0
Hydro, geothermal, and nuclear electricity	2.2	2.3	2.4
Total	100.0	100.0	100.0

[1] Based on data in United Nations, World Energy Supplies 1968-71. Statistical Papers, Series J, No. 16, New York, 1973, p. 10.
[2] Estimate, based on extrapolation of United Nations data for 1971 using world production data for listed commodities reported and published by the U.S. Bureau of Mines.

Petroleum accounted for 44.1% of total energy production, as that commodity continued to increase its proportion of the total. Although world natural gas production increased in 1972 by nearly 5% over 1971 output, its percentage of the total energy produced remained unchanged at 21%. The proportion of total energy output attributed to coal continued to decline, while hydro-geothermal-nuclear energy rose slightly. Output data by major producing countries for coal, natural gas, and crude petroleum for the 3-year period 1970-72 is given in tables 48, 49, and 50.

TRADE

GENERAL TRENDS

The aggregate value of world mineral trade in 1972 unquestionably exceeded that registered for 1971 as a result of both generally increasing unit prices and increasing volume of shipments, but available information was inadequate to fix the level of growth either from the viewpoint of

[5] Excludes wood, charcoal, bagasse, animal dung, peat, and other minor fuels, although such fuels are used as commercial fuels in some countries, and a few nations account for a significant part of total energy consumption.

value or volume. The estimated value of all mineral commodities traded in 1971, the latest year for which reasonably complete data are available, was $90,662 million, an increase of 8.2% over the 1970 total. Although this is a lower percentage increase than the 17.6% recorded the previous year, the 1971 level represents the highest level of world mineral commodity trade value recorded, a $6,908 million increase over the previous year's high. In terms of major mineral commodities' share of all commodities traded, the aggregate of mineral commodities accounted for 26% of the total, compared with 26.9% in 1970. This represents the lowest proportion in several years, as indicated 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)
1967	56,748	6.9	26.5
1968	63,361	11.7	26.6
1969	71,202	12.4	26.2
1970	83,754	17.6	26.9
1971	90,662	8.2	26.0

[1] Value estimated from data on mineral commodities appearing in table 4 to which have been added a factor for all 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 4, 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 4 represent about 81.5% of total mineral commodity trade.

Comparison with the previous year's total of world trade in mineral commodities indicates an upsurge in terms of both value and percentage of mineral commodity trade by the developing market economy countries, since these nations expanded their output of mineral commodities for processing in the developed countries. Although the value of trade by developed market economies increased, their share of total world trade declined by nearly 3%, and centrally planned economy countries and developing market economy countries gained a larger share of the total. The increase in the share of the total by the latter may be attributed to higher demand for raw materials by the developed nations.

COMMODITY GROUP TRADE PATTERNS

The distribution of the total value of export trade for five major mineral commodity groups over the 5-year period 1967-71 is given in table 4. The export value of the separate commodity groups varies considerably, with mineral fuels accounting for the highest value, $35,780 million in 1971, an increase of $7,170 million over 1970. The percentage of the total value of world trade in major mineral commodities accounted for by each major group is given in table 5, and the growth in value of each major mineral commodity group from year to year is detailed in table 6. It can be seen that while iron and steel, nonmetals, and mineral fuels all increased in value in 1971, only mineral fuels gained a larger percentage of the total. The rate of growth of value of world trade in mineral fuels increased to 25.1%, compared with a 15.1% rate of growth for that group in 1970 and an 8.2% growth rate for major mineral commodity groups as a whole. This increase reverses the trend of a declining percentage of the total registered by mineral fuels over the past 4 years. The value of export trade of ores, concentrates, and scrap declined for the first time in recent years, and the value of nonferrous metal trade fell for the first time since 1967. The above-mentioned growth rate of 8.2% for all major mineral commodity groups also was the first decline since 1967, and is considerably below the 17.6% growth rate for mineral commodities recorded in 1970.

In general, excluding minerals fuels, the rates of growth of the separate mineral commodity groups in 1971 were considerably below those recorded in 1970. Nonferrous metals, which accounted for 14.1% of the total value of export trade, registered a decline in growth rate of 14.8%, but the growth rate of the group ores, concentrates, and scrap declined 8.0%. In spite of the declines in both value and percent indicated by several major mineral commodity groups, the increase in the total value of all major mineral commodity groups may be attributed to the heavy increase in the value of mineral fuels exported, as well as the performance shown by iron and steel, which is the second largest group, accounting for 24.1% of the total value of major mineral commodities.

In 1971, the rate of growth in the value of aggregate major mineral commodities

fell behind that for all commodities traded, with the latter declining to 11.7% from 14.6% the previous year.

REGIONAL TRADE PATTERNS

The distribution of world trade by geographic area for the major mineral commodity groups (metal ores, concentrates and scrap, iron and steel, nonferrous metals, nonmetals, and mineral fuels) in terms of dollar value in 1971 is given in tables 7, 8, and 9. Table 7 compares major mineral commodity export trade by region with total commodity trade for these same regions in both value and percent. Table 8 gives the origins and destinations of each major mineral commodity group in terms of exports from and exports to the regions indicated. Table 9 elaborates in more detail the data appearing in the previous table by indicating the source of exports of the aggregate of major mineral commodities and their destinations by the countries and regions shown in the major portion of the table. These last two tables also help to illustrate the relative self-sufficiency in or dependence upon mineral commodities by the regions selected.

The overall pattern of 1971 world trade in major mineral commodities in terms of developed and developing market economies and centrally planned economies is given in the following tabulation:

Destination [1]	Sources of exports [1]				
	Market economy countries		Centrally planned economies	Undistributed [2]	Total
	Developed	Developing [2]			
Value (million dollars):					
To market economy countries:					
Developed	29,020	23,475	2,915	--	55,410
Developing	4,420	5,233	610	12	10,275
To centrally planned economy countries	1,832	517	4,630	1	6,980
Undistributed [2]	568	455	200	2	1,225
Total	35,840	29,680	8,355	15	73,890
Share of world total in percent:					
To market economy countries:					
Developed	39.3	31.8	3.9	--	75.0
Developing	6.0	7.1	.8	(3)	13.9
To centrally planned economy countries	2.5	.7	6.2	(3)	9.4
Undistributed [2]	.8	.6	.3	(3)	1.7
Total	48.6	40.2	11.2	(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, the Netherlands, New Zealand, Norway, Portugal, the Republic of South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the 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, the U.S.S.R., and North Vietnam; developing market economy countries include all countries not specifically listed previously in this footnote.
[2] Figures represent difference between reported totals and reported detail.
[3] Insignificant.

Examination of the above tabulation indicates that, in comparison with 1970, every entry recorded an increase in value except for trade in mineral commodities from developed market economies to developing market economies. Of greater significance is the change in percentage distribution of total world mineral trade by the different economies relative to the previous year. The percentage of world trade in major mineral commodities from developed market economies to all economies declined from 51.4% in 1970 to 48.6% in 1971. In particular, export trade from developed to developing market economies declined from 7.2% to 6.0%. In 1971 developing market economy countries gained a larger percentage of world mineral exports, increasing to 40.2% from 38% the previous year. Export receipts by developed market economies decreased slightly from 75.6% in 1970 to 75.0% in 1971, while receipts of developing market economies declined by slightly over 1% to 13.9% in 1971. Centrally planned economies increased their value of receipts from the previous year, but the percentage increase of the total was slight. Although the percentage shares of total world mineral trade changed from the previous year, developed market economies continued to account for most of the trade.

The significance of export trade of major

mineral commodities, to total trade of the countries and regions selected (as given in table 7) varies considerably. In the Near East, 87.8% of all commodities exported from that region were mineral commodities (chiefly crude and refined oil). This is the largest percentage of total national exports accounted for by mineral commodities from the areas and countries listed, followed by other Africa at 54.6%, "Not reported" at 44.7%, and Latin America at 42.3%. Comparison with 1970 data indicates that, in general, the percentage figures given in the "Exports from" column were lower in 1971 except in the case of Communist European countries, other Africa, the Near East, and other South Asia and Far East. Although there was an increase of $5,180 million in the total value of major mineral commodities exported from the countries and regions indicated, this was more than offset by an even larger increase in value of nonmineral commodity exports. Countries and areas whose export trade in major mineral commodities accounted for the lowest percentages of all commodities traded were Communist Asia, with 5.3%, and the United States with 8.6%, both down from the previous year. The Republic of South Africa, with 11.4% of total listed trade accounted for by major mineral commodities, does not have included in the value data figures for gold, diamonds, and a variety of metals, the inclusion of which would increase the mineral commodity percentage appreciably. Japan continued to lead as the main importer of major mineral commodities in terms of the percentage of total commodities imported, with the share rising to 41.3% in 1971 compared with 36.5% in 1970. Major mineral commodities accounted for 32.5% of all 1971 commodity imports of those nations included under "Not reported"—down from the 78.1% share registered in 1970 due to large increases in the value of nonmineral commodities exported to countries in that category. The share of total commodity trade accounted for by major mineral commodities was 21.2% for all countries and regions in 1971, down slightly from 21.9% in 1970. The relatively low level of mineral commodity imports for Canada, the Republic of South Africa, and Australia and New Zealand resulted in mineral commodity export receipts for those countries of 13.1%, 10.4%, and 11.9%, respectively, in 1971. The percentage of major mineral commodity export receipts to most major areas remained unchanged or declined.

In table 8, value of world trade in three of five major mineral commodities increased in 1971. By far the largest increase was in mineral fuels, up $7,080 million from 1970. The major portion of the increase, $4,090 million, is the result of increased exports to non-Communist Europe. Value of total world trade in nonferrous metals and metal ores, concentrates, and scrap declined, with exports to Europe of nonferrous metals alone falling off by $1,400 million. It should be noted that data for several of the commodities does not appear and is presumed to be included under "Not reported." Owing to the system of reporting used, the Standard International Trade Classification Revised (SITC-R), gold continues to be excluded.

Destinations for the aggregate of major mineral commodities in terms of major world areas and countries, as given in table 9, indicates the relative export-import position for those areas. Specifically, comparison of total exports credited to each country or region (vertical grand total column) with total export receipts (horizontal grand total line) will indicate the position of each area as a net importer or net exporter of major mineral commodities. Excluding the Republic of South Africa, the United States, Canada, Latin America, and other Europe, export receipts for all areas shown increased in 1971, with the Near East showing the greatest increase.

CONSUMPTION

NONFUEL MINERAL COMMODITIES

Although data is lacking on world consumption of many mineral commodities, consumption of most major nonfuel mineral commodities presumably advanced substantially, judging from the performance of selected major metals and nonmetals. Examination of these selected commodities indicates that only tin consumption did not advance in 1972, remaining at its 1971 level of 172,000 tons. Consumption of iron ore, the major ore of the metallurgical industry, reached a level of 592.6 million tons in 1972 in 22 selected nations, a figure

17 million tons in excess of the 1971 level. The countries selected included all major world producers of pig iron except the People's Republic of China. The iron ore consumption figures are based on iron ore use in agglomerating plants, blast furnaces, and steelmaking. Table 10, which shows iron ore consumption by selected major country, indicates that the United States and the nations of the European Economic Community increased consumption by 11.4 and 11.2 million tons, respectively, in 1972. These increases more than made up for the declines in iron ore consumption registered by the European Free Trade Association countries and Communist Europe. These consumption levels, which are based in part upon estimates, indicate that of the total iron ore consumed, about 6 million tons was used directly in steelmaking; approximately 41% of the iron ore was treated in agglomerating plants prior to being fed to blast furnaces; and the remainder, amounting to over 58% of the total, was fed to blast furnaces and other facilities for production of pig iron and other products with or without agglomeration.

In 1972, iron and steel scrap consumption in 23 selected countries rose more than 17 million tons to over 264 million tons. This is the highest consumption level of iron and steel scrap yet recorded, just slightly exceeding the revised 1970 total. Consumption of this commodity by the countries listed in table 11 parallels somewhat the consumption of iron ore. However, lack of complete data necessitated the estimation of totals for certain of the countries listed in the table. The United States, the major consumer listed, retained its 1971 consumption level of 75 million tons. Finland and Spain together reported a consumption increase of about 1 million tons in 1972, while the Communist European countries raised their level of consumption of iron and steel scrap by nearly 5 million tons.

Table 12 gives estimated world consumption of five major nonferrous metals over a 3-year period. Aluminum showed an increase of 10.2% over 1971, or slightly over 1.1 million metric tons. Consumption of copper, lead and zinc also increased in 1972. Of the five nonferrous metals listed, zinc had the second highest percentage increase after aluminum, 9.2% or 433,000 tons. Copper and lead indicated increases of 7.4% and 3.8%, respectively, in 1972. In terms of tonnage, copper consumption rose 533,000 tons, the largest increase since 1969 when consumption was up 601,000 tons over the 1968 total. Use of lead, for which there has been a characteristically modest consumption for the past decade, jumped by 135,000 tons in 1972.

As in the case of metals, data on a worldwide basis on the consumption of most nonmetallic mineral commodities is not available. Despite the lack of overall data, it is reasonable to assume that major commodities in this group, limestone, cement, and fertilizer materials, again advanced in 1972. Although the enforcement of pollution control regulations was expected to reduce worldwide demand for sulfur, consumption of that commodity in 1971, the latest year for which data is available, increased slightly. With regard to fertilizers, world consumption of nitrogen fertilizer for the 1971-72 fertilizer year (July 1, 1971 to June 30, 1972) was reported at 33.8 million tons, a 6.6% increase above the previous year, but still, on a percentage basis, below the 7.3% increase registered in the fertilizer year 1969-70. Phosphate consumption in terms of contained P_2O_5 increased from 21.4 million to 22.4 million tons, a 4.4% increase. Potash consumption in terms of K_2O equivalent for the 1971-72 fertilizer year was nearly 17.1 million tons, a 2.8% rise over the previous year's total.[6]

MINERAL FUEL COMMODITIES

Consumption of mineral fuel commodities may be viewed in terms of the energy produced from these commodities. In 1971, the latest year for which comprehensive reliable data is available, the total world consumption of mineral fuels, which includes coal, oil and natural gas, and primary electric power (that power produced by means other than the burning of the aforementioned fossil fuels) amounted to 7,096 million metric tons of standard coal equivalent (SCE). This is an increase of 4.0% over the total 1970 aggregate of 6,822 million tons SCE, but a lower percentage increase than the 6.5% rise between 1969 and 1970. Table 13 gives

[6] The British Sulphur Corp. Ltd. Statistical Supplement No. 4, November-December 1972, London, 1973.

a detailed breakdown of energy consumption in terms of major source (solid fuels, liquid fuels, natural gas, and primary electric energy) and by continental divisions for the 5-year period 1967-71 as reported by the Statistical Office of the United Nations. Liquid fuels continued to increase their share of the aggregate of energy in SCE consumed in 1971, amounting to 42.7% compared with 41.9% in 1970. The most significant change in the percentage distribution of these energy sources with regard to their share of the aggregate energy consumed was evidenced by solid fuels, which registered a quantitative decline in terms of tons of SCE for the first time since 1967. As a result of this decline, coupled with quantitative increases in consumption of other fuels, solid fuels accounted for only 33.6% of all fuel consumption in terms of SCE in 1971.

Although the quantity of solid and liquid fuels consumed in terms of SCE was considerably greater than that for natural gas, the rate of growth of natural gas, 6.8% in 1971, exceeded that for all other sources. This growth rate is due in large part to intensification of efforts to utilize the relatively large presently available quantities of natural gas, which is a less expensive (in terms of caloric value and pollutant content) energy source. Natural gas utilized was equivalent to a total of 1,513 million tons SCE, or 21.3% of total energy consumed. Primary electricity increased by 6.4% to 167 million tons SCE although this figure represents only 2.4% of total energy consumption.

With regard to consumption by all market economy countries and centrally planned economy countries, it can be seen that market economy countries again decreased their consumption of solid fuels, increasing consumption in all other categories. Centrally planned economy countries increased consumption in all energy sources except primary electrical energy, which remained at its 1970 level. The difference shown by the two types of economy countries with regard to their consumption of solid fuels is due partly to the importance of pollution control affected by the market economy countries and partly to the ready availability and lower cost of coal in centrally planned economy countries. On a regional basis those areas with historically low consumption levels experienced the largest percentage growth in consumption of aggregate fuel sources. Other America, Africa, and the Near East increased aggregate consumption by 8.9%, 11.9% and 11.1%, respectively, in 1971. Western Europe, where consumption of natural gas still accounts for less than 10.1% of the aggregate energy consumed, increased consumption of that fuel source by 29.6% in 1971. Liquid fuels accounted for nearly 56.8% of the total, with the remainder being made up by consumption of solid fuels (29.5%), and nuclear and hydroelectric power (3.5%). In the centrally planned economy countries, solid fuel consumption amounted to nearly 59% of aggregate energy consumed, compared with 23% for the market economy countries.

Per capita consumption increased for all world regions listed, with less developed areas generally showing higher percentage gains than developed regions. However, developed market economies by far maintained the highest per capita consumption, over four times that for centrally planned economies.

RESERVES, RESOURCES, AND EXPLORATION

Continued growth in demand for virtually all mineral commodities in 1972, coupled with prophecies of impending depletion of known economically operable deposits of certain commodities within the remainder of this century, provided impetus for intensification of exploratory efforts aimed at expanding the known resource base. These same forces also motivated an intensification of development exploratory work and technological studies directed toward converting those deposits now in the category of a resource into materials that qualify as a reserve. Although space limitations preclude detailed discussion of the world reserve-resource situation, even for only the major mineral commodities, either in terms of the total available supply or in terms of 1972 additions to reserves, some albeit incomplete and brief comments on this aspect of world mineral industry activity seem in order.

Analysis of the reserve-resource situation of any commodity must be considered using accepted definitions of the terms involved. The term reserve is applied to deposits that are economically recoverable at present prices using current technology, and the term resource is applied to deposits that are identified but not known to be economically recoverable under present conditions, including those areas where the degree of mineralization may later prove adequate for exploitation of the mineralized zone.

Reserves of a number of major mineral commodities in 1972, as estimated by the U.S. Bureau of Mines, are given in table 14. The table also includes the distribution of these reserves by market economy and centrally planned economy countries, with some detail on major countries. In terms of the percentage of the world total reserves of the selected commodities, reserves of the principal market economy countries indicated together with those of the centrally planned economies, generally account for over 70% of the total. Exceptions to this generalization are natural gas, approximately 626,000 billion cubic feet of which are accounted for by unspecified market economy countries, and sulfur, with Near East countries accounting for 472 million tons.

As can be expected, the reserve situation of a mineral commodity may not vary considerably in the short term. However, reexamination of available data has resulted in substantial revisions of previous estimates for several commodities, most notably aluminum, phosphate rock, potash, natural gas, and petroleum. Estimates of phosphate rock and potash have been revised downward due to previous inclusion of deposits which since have been determined as uneconomical at present prices and technology. Estimates of aluminum, natural gas, and petroleum reserves have increased, primarily as a result of advancing prices, new discoveries, and inclusion of additional deposits previously known but not incorporated into previous reserve figures.

In light of the development of the international energy crisis in 1973, it seems appropriate to briefly comment on reserves of crude oil, the most significant fuel material of our time. There were additions to world crude oil reserves in 1972 that could be regarded as individually significant in size when examined with respect to the preexisting reserve availability of the country where the addition was made, but these changes did little to alter the relative regional shares of total world reserves. As shown in table 14, three nations of the Near East (Saudi Arabia, Kuwait, and Iran) control virtually one-half of the total oil reserve of market economy nations. When reserves of other Near East nations and of the countries of the Northern tier of Africa, most notably Libya and Algeria, are added, the share of market economy world reserves controlled by Near East-North African producers swells to well over half the total. The potential international political power that can result from such a reserve concentration within a single bloc of nations was amply demonstrated in 1973.

Indicated reserves of natural gas in the U.S.S.R. have increased from 423,000 billion cubic feet in 1971 to 636,000 billion cubic feet in 1972. The increase in aluminum reserves was registered by market economy countries, with new deposits in Australia accounting for a large portion. It may be assumed that, with regard to the proportion of a number of these commodities accounted for by centrally planned economy countries, the U.S.S.R. maintains a high percentage of the total by virtue of its land mass and known estimated reserves.

With regard to nickel, estimated known reserves of 16,329 thousand metric tons exist in Cuba. In the area of worldwide exploration for mineral deposits, available information indicates that during 1972 major exploratory work was again centered on the continent of Africa. Gabon, the world's third largest producer of manganese, has indicated that its' maganese ore deposit at Moanda contains an estimated 200 million tons of 50% to 52% manganese, one of the largest in the world. An iron ore deposit at Belinga has been put at 800 to 1,000 million tons of 60% iron content; however, exploitation of this deposit is awaiting completion of a rail link to the coast. Several deposits of uranium have been located, and indications are that these will be used to supply requests from the French Atomic Energy Commission. The Mounana deposit is reported to contain 1,780 tons of uranium metal; 3,280 tons are located in a deep deposit at Boyindzi and 10,000 tons were reported in a deposit at Oklo.

In the Ivory Coast, iron ore deposits in

the Man region are believed to constitute a 2 billion ton low grade (38% iron) reserve, with upgrading expected to result in a 68% iron concentrate. Prospecting is currently underway over a 4,066 square mile area in the Bangolo region. The most promising deposit thus far is at Mount Klahoyo, where 20 million tons of ore are indicated. If production is initiated, the Ivory Coast will become one of the leading iron ore producers in Africa. A primary problem here, as in developing other remote deposits in other countries, is the lack of transportation. The possibility of transporting the pulverized ore by pipeline in the form of a semiliquid mud is being studied, with the slurry then dried and converted to pellet form. However, in spite of the increased expense involved in the construction of a railroad from Man to San Pedro, it is more likely that that will be the choice due to the Government's desire for greater contribution to the economic development of the region. Copper prospecting is also underway in Toulepleu-Danane, with molybdenum and columbium-tantalum included in the search.

In Mozambique, prospects were good for the construction of the Cabora Bassa Dam which will lead to the exploitation of mineral deposits in that and neighboring countries. Output would be facilitated to the extent that coal production at Moatize in the region of Tete may be increased to 2 million tons per year, compared with the current 300,000 tons per year that is shipped through the port of Nacola. The Zambezi basin contains deposits of fluorite at Canxixe and Djanguire estimated at 600,000 tons. Titanium-iron reserves at Madeduo, Txitiza, Inhantipisa, and Massamba, although still in the process of being evaluated, are believed to be exploitable at the rate of 700,000 tons per year.

A bauxite deposit reportedly covering an extensive area in the region of Minern-Martap has been estimated to contain reserves of 2 billion tons. The deposit has been put at 43% alumina and 3.4% silica. As noted previously, the necessity of transporting the ore great distances in a region of general isolation involves considerable expense; thus any concern interested in exploiting the ore body must consider the cost of a reasonably dependable infrastructure as well. In the case of the bauxite reserve at Minern-Martap, the extension of a railroad to the base of the Ngaoundal range may eliminate a considerable portion of the difficulty.

INVESTMENT

Available sources indicate a rather dramatic growth in worldwide mineral industry investment in 1972. Although comprehensive data on such investment are not available, those figures available on petroleum industry and iron and steel industry investment by major market economy countries, together with overall mineral industry investment figures for the United States, clearly reflect this growth pattern. The most notable exclusion from a geographic viewpoint is the lack of readily comparable mineral industry investment figures for the centrally planned economy nations—the U.S.S.R., other East European countries, and the People's Republic of China. For these areas, however, although the level of investment is not quantifiable, it is at least generally indicated in announced expansion and development plans which point to significant increases.

Despite the inadequacy of the base for extrapolation to estimate worldwide investment, the data on the commodity sectors of the mineral industry which are available do serve to indicate an expanded growth rate of investment for the industry as a whole, as well as a quantifiable general rate of growth for non-Communist countries.

Investment expenditures in the steel industry for selected countries in 1970 and 1971 are given in table 15. Total investment expenditures in 1971 amounted to $7,282 million, a 16.2% increase over the revised investment total of $6,267 million in 1970. Japanese investment growth was again the largest, amounting to a $592 million increase in 1971 over that of 1970, reflecting that nation's continued expansion in steel production. The $476 million growth in investment recorded for the European Economic Community (EEC) consisted mainly of increases of $229 million by Italy and $179 million by France. The United Kingdom accounted for $246 million of the $277 million investment expansion made by members of the European Free

Trade Association (EFTA). Those nations with decreased investment expenditures in 1971 included the United States, Spain, Belgium-Luxembourg, and Ireland.

Non-Communist world petroleum industry expenditures for capital investment and exploration expenses are given by geographic area in table 16 and by industry sector and type of expense in table 17. In 1972, the total of capital expenditures plus exploration expenses increased 14.2% to $26,490 million, up $3,295 million from 1971. This increase is considerably larger than the 8.1% increase recorded between 1970 and 1971 and well ahead of prior recorded increases.

The geographic distribution of investment in the non-Communist world petroleum industry in 1971 and 1972 is given below by area in percent of total:

Area	Percent of total	
	1971	1972
United States	34.3	37.0
Other Western Hemisphere	15.5	12.7
Western Europe	18.2	17.3
Africa	4.9	4.5
Near East	3.8	3.9
Far East	11.4	10.9
Unspecified	11.9	13.7
Total	100.0	100.0

The United States continued to account for the largest percentage of non-Communist world petroleum expenditures in 1972, regaining a portion of the 7.1% drop recorded between 1970 and 1971.

Examination of regional distribution of petroleum expenditures and exploration expenses indicates a major upsurge in U.S. investment, greatly offsetting the negative effect which the United States had on the world total in 1971. That country, after a decline of 925 million between 1970 and 1971, increased expenditures for capital investment and exploration by 22.9% to $9,790 million, up $1,825 million. Another significant development was the regionally undistributed investment in tanker construction, which increased 32.7% to $3,650 million from $2,750 million. All other regions increased total expenditures except for the Western Hemisphere (excluding the United States), which declined by 6.5% in 1972. The Near East, while operating from a smaller base, increased total expenditures by 17.7% with an additional investment of $150 million in 1972.

Regarding non-Communist world petroleum industry, capital expenditures by industry sector and exploration expense, it can be seen that crude oil and natural gas production again accounted for the largest percentage of the total. That sector, already larger in comparison with all others, registered an increase of 47.1% in 1972 amounting to $3,070 million for a total of $9,590 million, or 36.2% of the non-Communist world total. Expenditures for marine facilities increased 31.3% or $900 million to $3,775 million, the second largest increase in any sector after crude oil and natural gas. The various sectors of the petroleum industry ranked in order of percentage of total expenditures after crude oil and natural gas are as follows: Refineries, 18.7%; marine facilities, 14.3%; marketing, 10.7%; exploration, 5.8%; chemical plants, 5.1%; pipelines, 4.6%; natural gas plants, 1.9%; and all other miscellaneous expenses accounting for the remainder. The relative ranking changed slightly for several of the sectors since capital expenditures for marine facilities exceeded those for marketing by $950 million, and expenditures for chemical plants, down 12.1% from 1971, fell behind outlays for exploration.

Direct U.S. investment in the mineral industries and petroleum industry in foreign areas, along with earnings and income, is given in table 18. Overall U.S. investment in mining, smelting, and refining increased 6.7% in 1972 to $7,131 million, while U.S. petroleum investment rose 9.3% to $26,399 million. Geographically, it is significant to note that U.S. mining investment in Chile fell by nearly $100 million, with a slightly larger amount added to mining investment in Australia. Petroleum investments in the Latin American republics declined slightly, but increases were recorded in all other countries and regions. U.S. petroleum investment in Europe was up 12.7%, with a considerable portion of this allocated for North Sea exploration and development. A 14.6% increase was recorded in the Far East and Pacific region, and a 23.3% increase in investment occurred in the Near East. Table 18 also gives investment totals in mining, smeltering, refining, and petroleum for the 3-year period 1969-71 for purposes of comparison.

TRANSPORTATION

MARINE TRANSPORT

Three major classes of oceangoing vessels are employed in the transport of mineral commodities: tankers, bulk carriers, and freighters. Table 19, derived from a U.S. Maritime Commission report, lists these classes individually and summarizes the world's total merchant fleet in terms of number of vessels and tonnage. It can be seen from the table that only freighters as a class decreased in number from the previous year, but all categories, except for vessels classified as other, showed increases in both gross tonnage and deadweight tonnage. As in previous years, tankers accounted for the greatest percentage of total deadweight tonnage, nearly 48.3% in 1972. However, it should be remembered that in the case of each of these major classes, not all of the vessels listed are involved wholly or even partly in transporting mineral commodities. Tankers, though devoted mainly to trade in crude oil, natural gas, and refinery products, also move chemicals and products such as molten sulfur and whale oil. Bulk carriers are heavily engaged in the transfer of metal ores, cement, and fertilizers, but also move sizable quantities of bulk agricultural products. Freighters are not primarily engaged in mineral commodity shipment but nonetheless move substantial quantities of metal ingots and semimanufactures as well as some ores and concentrates.

World shipping of tanker and dry cargo by loadings and unloadings for the period 1968-72, as given in table 20, indicates that total world shipping in 1972 increased by 6.1% over that of 1971 for a record 2,861 million tons. Separately, tanker cargo loadings increased 7.0% and dry cargo loadings rose 4.9%.

Regional patterns of tanker and dry cargo movement are recorded in tables 21 and 22, respectively. The trends in world movement of tanker cargo, which were highlighted in 1971, continued to be reinforced. Unloadings of crude oil and refined products increased 18.4% for the United States in 1972, and unloadings of tanker cargo for Japan and Western Europe were up 8.1% and 6.0%, respectively. Western Europe also increased loadings of tanker cargo as refinery capacity expanded and port facilities were completed. Developing market economies increased loadings of tanker cargo in 1972 by 6.2%, with the major portion of this increase coming from the Near East. That region increased loadings 11.7% to 852 million tons, while the Far East and other Africa increased loadings by 13.8% and 15.7%, respectively, in 1972. Venezuela continued the downward movement begun in 1971, declining 9.5% in loadings of tanker cargo. North Africa also recorded a lower level of tanker loadings in 1972, declining 4.9%. Centrally planned economies, while showing little change in tanker loadings from the previous year, were up in tanker unloadings by 17.4%, though from a relatively small base. The developed market economies continued to increase dry cargo shipments as loadings were up 6.8%. Developing market economies increased loadings only 2.6%, while the U.S.S.R., relatively unchanged for the previous years, more than doubled the amount of dry cargo tonnage unloaded in its ports.

The share of world mineral commodity trade in total world commodity movement in 1972 is unavailable due to insufficient information. However, in 1972, 56.3% by weight of all cargo transiting the Panama Canal consisted of mineral commodities. On the basis of this figure and the substantially larger tonnages of crude oil and refinery products moving by tanker and bulk carriers from the Near East and elsewhere, it may be inferred that mineral commodities as a whole account for an even greater share of the total world movement of goods.

By yearend 1972 the world merchant fleet[7] totaled 21,009 vessels with a gross tonnage of 250,543,000 tons and a deadweight tonnage of 399,552,000 tons, increases of 2.3%, 8.8%, and 10.5%, respectively, over 1971 totals. These percentage increases for the total merchant fleet in 1972 are lower than those registered in 1971, although the number of vessels and tonnages indicated are the largest ever recorded.

The percentage increases among the various ship classes with regard to number of vessels and tonnage varied considerably. Tankers and bulk carriers again recorded

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

gains in both number of vessels and tonnage, with bulk carriers showing substantial percentage increases. Though the number of freighters declined for the first time since 1969, gross tonnage and deadweight tonnage increased slightly. Other vessels (passenger-cargo, passenger-refrigerated cargo, and refrigerated freighters) remained stable in number, but declined in both tonnage categories. In 1972 tankers and bulk carriers together again accounted for an increased share of the total in both numbers and tonnage.

Tankers.—In 1972 the world tanker first increased by 150 vessels over the 1971 total. Many of these vessels were in the supertanker class, indicating the continued rapid expansion of these vessels with prolonged closure of the Suez Canal. The total tanker fleet between yearend 1971 and yearend 1972 increased by 3.4% in number of vessels, 9.5% in gross tonnage, and 11.4% in deadweight tonnage; comparable figures for the previous corresponding period were 4.7%, 11.4%, and 13.1%, respectively.

The average gross tonnage of tankers in service increased from 22,366 tons in 1971 to 23,697 tons in 1972; in terms of deadweight tonnage the increase was from 39,087 to 42,107 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 growing dependence on tankers is most noticeable when examined by various size groups, especially when data on existing vessels are compared with those for planned new construction. Table 23, compiled from a source other than the U.S. Maritime Commission (and therefore differing slightly in totals given by that source and appearing elsewhere in this section), indicates that the total world tanker fleet amounted to 193.9 million deadweight tons, with an additional 120.2 million tons in progress or on order at yearend 1972. Vessels in service over the 285,000-ton class accounted for 3.5 million tons, while those vessels in the same weight class in progress or on order totaled 20.9 million tons. Included among the latter are two 530,000-ton tankers to be built in France. These two supertankers, when completed will exceed the biggest ship now afloat by 260,000 tons, and will have a capacity of 3.7 million barrels of oil, with a draft of 93 feet. Vessels of this size will not be without problems, as the added capacity and draft may prevent their navigating waterways now used, such as the Malacca Strait and the Lombok and Makassar Straits, and thus increase travel time. Vessels in service in the 205,000-ton class amounted to 58.6 million tons, while those of the same class in progress or on order totaled 71.7 million tons. Completion of all vessels in progress or on order and their addition to the vessels in service will bring the total fleet to 314.1 million tons. Discounting reductions in tonnage due to scrapings, losses or other deletions from the fleet in service by yearend 1972, 56.8% of the tanker fleet will consist of ships over 125,000 tons.

The percentage of total tonnage, for the years 1971 and 1972, in terms of the year of completion of vessels classified as tankers is given in the following tabulation:

Year of completion	Percentage of total tonnage	
	1971	1972
Up to yearend 1945	3.1	2.7
1946-50	1.4	1.1
1951-55	9.5	6.5
1956-60	16.8	15.2
1961-65	20.1	18.2
1966-70	38.8	34.8
1971-72	10.3	21.5

Source: British Petroleum Co. Ltd. BP Statistical Review of the World Oil Industry—1971 and 1972. Baynard Press, London, 1971, 1972, p. 14.

A breakdown of the world tanker fleet at yearend 1972 in terms of flag of registry ranked in order of national aggregate deadweight tonnage follows:

Country	Number of vessels	Deadweight tonnage (thousand tons)
Liberia	809	50,273
United Kingdom	437	24,447
Japan	436	23,281
Norway	376	20,280
Greece	256	9,848
United States	280	8,193
France	132	8,152
Panama	198	7,313
Italy	208	5,613
U.S.S.R	444	5,437
Sweden	78	3,795
Denmark	58	3,624
Spain	109	3,515
Netherlands	82	3,200
Other	678	15,923
Total	4,581	192,894

Bulk Carriers.—In 1972, 321 vessels were added to the world bulk carrier fleet, raising the total to 3,539 vessels. This represents an increase of 8.9% between 1970 and 1971. The growth rate of bulk carriers was

considerably more substantial in both tonnage categories, increasing 17.8% in gross tonnage and 19.3% in deadweight tonnage. These figures compare with 16.5% and 17.9%, respectively, in 1971.

These percentage increases in bulk-carrier tonnage capacity are considerably greater than for any other class of vessel and may be attributed chiefly to the addition of ore carriers and large combination (ore-oil-other material) carriers which are noted for their versatility in changing market conditions. Maritime Commission data does not distinguish mineral-commodity oriented bulk carriers from those engaged in agricultural trade, but other sources indicate that at yearend 1972, 16.8 million deadweight tons of combined carriers were in building progress or on order. The absence of information prohibits the determination of the total number of these vessels currently in service; however, 21.5 million deadweight tons of combination carriers were in the building stage or on order by yearend 1971, and it may be assumed that a substantial number of these vessels were active by yearend 1972.

The average size of bulk carriers has continued to increase. The average gross tonnage of bulk carriers was 18,316 tons by yearend 1972, compared with 17,014 tons in 1971 and 10,967 tons in 1966. Comparable figures for deadweight tonnage in the same time periods are 30,662, 28,267, and 16,762 tons, respectively.

The total number of bulk carriers in service, as well as the total of the aggregate deadweight tonnage of such vessels under the major flags of registry for 1972 are indicated in the following tabulation:

Country	Number of vessels	Deadweight tonnage (thousand tons)
Liberia	753	27,395
Japan	525	19,420
Norway	362	14,502
United Kingdom	326	10,787
Greece	293	7,499
Italy	136	4,388
Germany, West	78	3,277
Sweden	79	3,017
France	64	1,694
Panama	111	1,649
India	44	1,609
Spain	46	1,183
U.S.S.R	135	915
Poland	56	909
Denmark	29	860
United States	32	702
Other	470	8,706
Total	3,539	108,512

Freighters.—Though a smaller proportion of freighters is involved in the transport of mineral commodities than are tankers and bulk carriers, they are the prime class of ocean carrier moving processed mineral goods, particularly metal smelter and mill products. In 1972, freighters accounted for 52.8% of the total number of vessels of the world's merchant fleet, 26% of the aggregate gross tonnage, and 22.2% of the aggregate deadweight tonnage. Although the number of such vessels was down from the previous year, both gross weight and deadweight tonnage capacity increased, mainly because of increased construction of large container ships. Exemplary of the demand for freighters is the increased world shipment of finished and semifinished metal products, which increased by 12% in 1972 over 1971 figures through the Panama Canal alone. Aggregate gross tonnage increased by 1,141,000 tons, compared with 879,000 tons for the previous year. Deadweight tonnage amounted to 665,000 tons, compared with 877,000 tons in 1971.

Freighters showed a modest increase in tonnage size, from an average of 5,772 gross tons, and 7,959 deadweight tons in 1971 to 5,879 gross tons and 8,025 deadweight tons in 1972.

The following tabulation lists the principal nations of registry of freighters in order of their share in the aggregate deadweight tonnage of the total world freighter fleet at year end 1972:

Country	Number of vessels	Deadweight tonnage (thousand tons)
Japan	1,148	9,210
Greece	903	8,123
United States	666	7,990
U.S.S.R	1,250	7,747
United Kingdom	700	6,610
Liberia	513	5,144
Germany, West	591	4,701
Norway	390	3,210
Panama	528	3,151
Netherlands	288	2,423
Cyprus	325	2,350
India	183	1,924
Other	3,602	26,387
Total	11,087	88,970

PANAMA AND SUEZ CANALS

In 1972 the Panama Canal registered a lower level of commodity transit than in 1971. Both total number of transits and cargo tonnage moved declined, although

toll revenues increased primarily because of increased use of large container ships. The grand total of 110,987,000 tons of cargo passing through the canal in vessels classified as commercial ocean traffic represented the first decline since 1963. Of this total, 56.3%, or 62,477,000 tons, consisted of mineral commodities, a decrease of 13.5% from the previous year's total of mineral commodity tonnage. The reduction in number of transits through the canal in 1972, down 254 from the previous year, and the lower level of cargo tonnage moved is attributed mainly to a slowdown in the Japanese economy as well as both east and gulf coast dock strikes in the United States and a Japanese seamen's strike. The Japanese recession, mainly keyed to the steel industry, greatly affected the flow of mineral commodities from Atlantic to Pacific. Mineral commodity movement and its importance in Panama Canal activity is summarized in the following tabulation:

	Fiscal years		
	1970	1971	1972
Number of transits:			
Commercial ocean traffic	13,658	14,020	13,766
Other traffic	1,865	1,328	1,432
Total	15,523	15,348	15,198
Cargo moved (million metric tons):			
Commercial ocean traffic:			
Mineral commodities	72.5	72.2	62.4
Other commodities	43.6	48.3	48.6
Subtotal	116.1	120.5	111.0
Other traffic, all commodities	4.7	2.4	1.8
Total	120.8	122.9	112.8

A detailed breakdown of commercial ocean traffic through the canal for the years 1971 and 1972, in terms of vessel type, cargo tonnage, number of transits, direction of movement (Atlantic to Pacific, Pacific to Atlantic), and by the status of the vessel (in ballast or laden) is given in table 24. A further detailed tabulation of specific mineral commodities and commodity groups by direction of movement over a 3-year period is listed in table 25.

The major movement of mineral commodities was from Atlantic to Pacific and amounted to 66% of total Panama Canal mineral commodity traffic in 1972, compared with 71.5% in 1971. This reduction, which was only slightly compensated for by increased shipments from the Pacific to the Atlantic, amounted to 10,426,000 tons of mineral commodities. Examination of table 25 indicates that coal, coke, and scrap metal shipments, primarily destined for the Japanese steel industry, fell sharply. Coal and coke declined by 7,840,000 tons, while scrap tonnage was nearly halved. An added factor in the transport of coal through the Panama Canal was the effect of adverse competition from large bulk carriers bypassing the canal to travel the Cape of Good Hope route to Japan. Bauxite, alumina, and crude petroleum showed increases in both transit directions, with crude petroleum from the west coast South American countries of Colombia and Ecuador bolstering traffic in this commodity. Coal and coke and petroleum (crude and refined) continued to be the dominant commodities in transit destined for the Pacific in 1972 despite the slowdown previously mentioned; in 1972 coal and coke together accounted for 34.8% of the total, and petroleum for 33.8%. Steel semimanufacturers continued to account for a growing proportion of Atlantic-bound mineral commodities—36.7% in 1972, compared with 31.5% in 1971. In terms of the previous year's Atlantic-bound shipments of steel semimanufactures, 1972 tonnage increased 1,299,000 tons, up 20%, with the bulk of this weight from Japan to the United States and Europe.

The Suez Canal remained closed throughout 1972, making it the fifth full year that the canal has had a negative influence on marine mineral transport patterns. Opening of the canal appeared to be one of the less pressing issues under consideration by Egypt and Israel, the combatants in the Middle East conflict. The prolonged closure of this waterway has resulted in the virtual creation of the mammoth tanker industry, and the threat of continued hostilities in the region has greatly lessened future dependence on the Suez Canal (barring any extensive expansion plans) for the movement of much needed crude oil. Deliveries from the Persian Gulf to European markets increased and, except for shipments moving overland by pipeline from the producing areas to Eastern Mediterranean ports, which are restricted by pipeline capacity, the entirety of such oil shipments reached their destinations by way of the Cape of Good Hope shipping route.

OCEAN FREIGHT RATES

Ocean freight rates in 1972 for selected countries appeared to be erratic in comparison with 1971 rates, but were generally on the down side and well below the record freight rates recorded in 1970. United Nations indexes, previously revised to permit more complete coverage of selected rates chosen for publication, were not complete for two categories. However, available information indicates generally depressed rates for the first quarter of 1972, with a steady climb through the second and third quarters, finishing the year with abruptly higher rates in the fourth quarter. Increased utilization of supertankers and container cargo vessels in 1972 may account in part for the reduced rates. United Nations indexes of selected ocean freight rates for 1969-72, including quarterly figures for 1971 and 1972, are presented in table 26.

PIPELINES

Because of the general unavailability of complete worldwide summaries of existing pipeline systems, detailed reporting of pipeline development on a worldwide basis is limited. However, mention of several major projects of international significance during 1972 is made in the following section.

In both western and eastern Europe, the inadequacy of existing crude oil and gas pipelines has necessitated the construction of additional capacity, usually incorporating larger diameter pipe parallel to existing lines. The Fos to Lyon 26-inch pipeline, part of the South European Pipeline system, was completed, with the Fos-Lyon section of the 40-inch line to Strasbourg well underway. Construction of the Druzhba II line, which is to parallel the present Druzhba system extending 2,796 miles, continued throughout the year. Work on the largest natural gas pipeline in Europe, consisting of 38-inch and 36-inch-diameter steel pipe, has begun. It will extend 507 miles from Bocholtz on the border of the Netherlands near Aachen to a terminal at Mortara in northern Italy. Construction of the line, scheduled for completion at the end of 1973, includes three river crossings, the Moselle river and the Rhone river twice, in the 302-mile section from the Dutch point to Switzerland. Yugoslavia has started development on two major crude oil pipelines, and Austria and Finland are considering construction of a product pipeline and a natural gas pipeline, respectively. Exploration of crude oil and natural gas from North Sea finds has resulted in considerable pipeline planning in that region. One plan calls for a pipeline system to bring oil from Cod, Tor, West Ekofisk, and Eldfisk on the Norwegian coast to Teeside on the United Kingdom's east coast. Construction of the gathering lines and 220 miles of 30-inch crude oil pipeline is to start in 1973. In the United Kingdom itself contracts have been awarded for creation of a 265-mile product pipeline from Milford Haven to Midlands and Manchester, for a 32-inch line extending 111 miles to Cruden Bay from the Forties Field, and a 36-inch line extending 130 miles from Cruden Bay to Grangemouth.

Studies on the construction of a sub-Mediterranean gas pipeline to Italy from Algeria continued. The most recent plans considered feasible involve a 553-mile line from Hassi R' Mel to Cap Bon in Tunisia, then 311 miles across the Mediterranean, Sicily and the Straits of Messina to Italy. Diameter of the pipe is to be decided when capacity of the line, originally put at 233 billion cubic feet per year, is finally determined.

In the Near East, the Suez Canal continued closed since no agreements for its reopening could be reached between Egypt and Israel. The Sumed line, a planned 205-mile 42-inch-diameter crude oil pipeline from Ain Soukhna to a point near Alexandria, came closer to realization as agreement in principle on the general financing of the project was reached. The line would serve as a bypass to the Suez Canal.

The U.S.S.R. appeared to be the main region of pipeline development in 1972, especially with regard to agreements with Japan, Afghanistan, Iran, Finland, and several eastern European nations. The first 508-mile section of the 48-inch crude oil pipeline from Tyumen in West Siberia to Nokhodka on the Sea of Japan was completed. Work started on a 900-mile section to Irkutsk, and was expected to be in operation by nearly 1973. The section from Anzhero-Sudzhensk to Irkutsk will run parallel to the existing trans-Siberian pipeline, and will have a capacity three times that of the older line. Plans for

extension of the line through Irkutsk to Nokhodka came closer to realization as Japan granted a loan request to the U.S.S.R. Construction was also in progress on the 1,140-mile crude oil pipeline from Ust Balyk via Tobolsk, Tyumen, Kurgan, Ufa, and Chelyabinsk to Almetyevsk, where it will link with the Druzhba system supplying Poland, East Germany, Czechoslovakia, and Hungary. The U.S.S.R. also completed a 311-mile diesel fuel line from Podolsk in Byelorussia to the Baltic port of Ventspils. Iran is on the second stage of the gas trunk line system to the Soviet frontier. The completed first stage consisted of 687 miles of 40-inch to 42-inch main line and 422 miles of branch lines to Shiraz, Kashan, Ghom, and Tehran. Gas pipelines were also planned between the U.S.S.R. and Finland and Afghanistan.

In Japan contracts were awarded for the first major Japanese oil products line. It will total 250 miles in two main branches from refineries in the Toyko area to inland terminals at Utsunomiya and Maebashi. Japan has also suggested the construction of a pipeline across the Isthmus of Kra in southern Thailand to link the Indian Ocean with the Gulf of Siam, but sensitive national interests may preclude its finalization. Australia plans to build an 850-mile, 34-inch gas pipeline from the Cooper Basin to Sydney, New South Wales.

In the Western Hemisphere, the oilfields at Alaska's north slope continued to be the focus of attention. The final report on environmental impact of the proposed pipeline was released, and the right-of-way for its construction was to be granted, but an appeal of the decision was expected to postpone activity for another 18 months. Stringent requirements to be met by the pipeline include antispill valves between pumping stations and continuous monitoring of seismic activity, as well as contingency plans in earthquake zones. Interest in having the pipeline constructed on Canadian territory is diminishing because of increased cost and hazard to the environment.

Discoveries of natural gas in the Arctic islands indicate a major gas reserve by world standards. The likelihood of a pipeline from that region is increasing, with a request for construction of a 48-inch line from the Mackenzie Delta expected shortly. Canada has several major project proposals underway, including the recovery and transport of natural gas liquids and condensate. Proposed is a plan for an extensive network of lines collecting ethane in Alberta and moving it along 1,000 miles of 8-inch to 16-inch main line to the United States-Saskatchewan border.

In South America, Argentina is planning construction of a 450-mile natural gas pipeline from fields in lower Patagonia to areas in and around Buenos Aires. Bolivia, after 4 years of delay, finally completed its 330-mile natural gas pipeline from the Santa Cruz fields to Yacuiba, making it South America's first major gas-exporting country. Under consideration now is a 1,242-mile line from Santa Cruz to Sao Paulo, Brazil. Ecuador initiated its first shipments of crude oil via 318 miles of pipeline from the Oriente region to a terminal at Balao for shipment through the Panama Canal.

PRICES

The average price of mineral commodities as a group advanced in 1972, despite declines in the average price of several major individual commodities. World production of raw steel in 1972 was up 8% over 1971 output, and price increases occurred in most major western steel producing countries. In the United States price increases for steel went into effect in January and were to remain frozen through the remainder of the year. The cost of installation of pollution control equipment continued to rise, resulting in a trend toward consolidation of plants and company mergers to reduce costs.

The average annual price of several major nonferrous metals for the United States, the United Kingdom, and Canada is given in tables 27, 28 and 29, with average monthly prices of these same commodities for 1972. Average zinc prices continued to climb strongly as in the previous year, with all three countries registering new highs. In the United States, zinc prices climbed steadily throughtout the year. In the United Kingdom prices were relatively erratic reaching a peak price in April. In Canada, average zinc prices rose consistently for the first half of the year, reaching a high in June, but fell off

slightly in the last 6 months. Lead prices finished up over the previous year's price, generally following the same price pattern for all three countries. In the United States, lead prices averaged up during the first 5 months, then declined gradually in the last 7 months. Canadian lead prices followed the U.S. price except for a slight increase in August. As in the case of zinc, lead prices in the United Kingdom were erratic, following no set pattern. The average price of tin increased sharply in the United Kingdom and moderately in the United States, with increases sufficient to surpass the previous price levels of 1970. Copper prices fell again in 1972 on all three markets, but the decline was considerably less than that taking place between 1970 and 1971. Aluminum, which was the only nonferrous metal in addition to zinc to increase in price in 1971, declined substantially on both U.S. and United Kingdom markets in 1972. In the United Kingdom, aluminum prices rose during the first quarter, but fell sharply in May and June, remaining at 25.000 cents per pound through the remainder of the year. As of May 1972, aluminum prices were no longer quoted in Canada. The price per ounce of silver, which dropped drastically in 1971 on all three markets, regained a substantial portion of the loss in 1972. All three markets also showed similar price fluctuations during identical periods, with prices climbing steadily throughout the year except for declines in June and September.

Mineral commodity export price indexes and an analysis of export price indexes as recorded by the United Nations are given in tables 30 and 31. The overall crude mineral export price index showed a gain of 14 index points in 1972 over 1971, reaching 141 (1963=100). Most of this increase occurred between the last quarter of 1971 and the first quarter of 1972. The price index of both metal ores and fuels gained, with the growth of the export price index of fuels twice that for metal ores. As with the total for crude minerals, the major portion of the increase for these two mineral commodity divisions took place between the final quarter of 1971 and the first quarter of 1972. The export price index of metal ores fell 1 index point in the second quarter, regained the loss in the third quarter, but then fell off 6 index points to close the year at an average of 134. Fuels increased gradually or remained stable through the year, ending at an annual average of 143 for 1972.

In the table analysis of export price indexes, the price index of total minerals rose to an annual average of 154, up 9 nine points from the previous year, for developed areas. The price index for developing areas rose 16 points from a lower base to an annual average of 135. The export price index of nonferrous base metals declined 1 index point for developed areas while increasing 1 point for developing areas. In both areas, the first quarter of 1972 showed considerably higher price levels than for the last three quarters.

The average prices and indexes of other individual mineral commodities in world export markets is not available in comparable form to those previously listed in this chapter. However, as crude oil and petroleum refinery products account for the greatest portion of total world mineral products value, and as demand for these commodities continued to increase strongly, it is reasonable to assume that these commodities also advanced in price in 1972.

STATISTICAL SUMMARY OF WORLD PRODUCTION AND TRADE OF MAJOR COMMODITIES

The final 30 tables in this chapter (tables 32 to 61) 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, 1969, 1970, and 1971 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 1972 Minerals Yearbook and on a country basis in Volume III.

The data presented here on production (tables 32 to 50) in most instances represent the most accurate figure available at the time of compilation of this chapter, which was subsequent to the completion

of all commodity and country chapters. Because of this, they may differ from data presented in this volume in the country chapters (where a more reliable figure became available after the country chapter was completed) and/or from the metric unit equivalent of data presented in Volume I (where a more reliable figure became available subsequent to the completion of the commodity chapter).

The data on world trade in major mineral commodities presented in this chapter (tables 51 to 61) may not correspond exactly to those presented elsewhere in the Minerals Yearbook because these summary tables are 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

Industry sector and geographic area	1970	1971	1972	1972 by quarters 1st	2nd	3rd	4th
EXTRACTIVE INDUSTRIES							
Metals:							
Non-Communist world	147	144	141	133	142	140	150
Industrialized countries[2]	152	149	145	134	146	142	157
United States and Canada	136	132	128	122	134	122	133
Europe	121	124	126	121	134	115	133
European Economic Community[3]	90	86	82	83	83	76	84
European Free Trade Association[4]	138	144	148	145	163	123	161
Australia and New Zealand	192	206	214	193	202	234	227
Less industrialized countries[5]	196	206	211	206	206	213	220
Latin America[6]	140	141	140	134	140	139	146
Asia[7]	139	143	143	141	141	141	147
Communist Europe[8]	187	201	211	215	211	211	206
World	156	157	157	151	158	155	163
Coal:							
Non-Communist world	90	88	83	78	87	79	87
Industrialized countries[2]	87	85	80	74	85	76	84
United States and Canada	124	118	124	123	131	118	123
Europe	74	73	63	55	67	59	70
European Economic Community[3]	73	71	61	52	66	57	68
European Free Trade Association[4]	64	61	61	66	59	61	61
Australia and New Zealand	151	159	181	162	189	189	186
Less industrialized countries[5]	122	125	127	128	125	125	128
Latin America[6]	139	152	151	NA	NA	NA	NA
Asia[7]	121	121	123	123	123	120	125
Communist Europe[8]	124	128	130	133	127	127	133
World	104	105	103	101	104	100	106
Crude petroleum and natural gas:							
Non-Communist world	166	173	180	178	175	178	188
Industrialized countries[2]	137	141	149	149	144	145	156
United States and Canada	129	130	135	133	132	135	138
Europe	234	276	322	348	293	272	375
European Economic Community[3]	262	318	377	412	342	311	443
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]	196	206	211	206	206	213	220
Latin America[6]	121	118	112	108	112	114	114
Asia[7]	192	218	229	221	222	230	243
Communist Europe[8]	175	187	199	205	202	195	191
World	168	177	184	184	181	182	189
Total extractive industry:							
Non-Communist world	152	155	165	160	165	161	175
Industrialized countries[2]	150	152	162	157	163	158	172
United States and Canada	140	141	152	146	153	152	158
Europe	148	152	160	158	161	147	172
European Economic Community[3]	144	147	154	153	155	142	166
European Free Trade Association[4]	122	125	126	126	133	112	135
Australia and New Zealand	165	176	187	168	185	200	195
Less industrialized countries[5]	166	178	189	181	188	191	198
Latin America[6]	160	171	182	NA	NA	NA	NA
Asia[7]	182	204	314	205	209	217	226
Communist Europe[8]	155	165	174	177	175	172	170
World	146	151	155	152	155	154	158
PROCESSING INDUSTRIES							
Base metals:							
Non-Communist world	149	144	157	150	159	152	166
Industrialized countries[2]	149	142	155	148	157	150	164
United States and Canada	128	120	134	128	139	127	141
Europe	147	141	149	145	152	144	157
European Economic Community[3]	142	135	140	136	143	136	146

See footnotes at end of table.

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

Industry sector and geographic area	1970	1971	1972	1972 by quarters 1st	2nd	3rd	4th
PROCESSING INDUSTRIES—Continued							
Base metals—Continued							
Non-Communist world—Continued							
Industrialized countries [2]—Continued							
Europe—Continued							
European Free Trade Association [4]	152	150	160	161	162	143	172
Australia and New Zealand	150	139	140	131	131	144	155
Less industrialized countries [5]	161	172	187	181	184	192	194
Latin America [6]	167	186	201	187	201	209	207
Asia [7]	157	152	171	175	161	169	178
Communist Europe [8]	164	174	184	187	183	184	183
World	154	153	164	161	166	162	171
Nonmetallic mineral products:							
Non-Communist world	140	147	157	140	160	161	164
Industrialized countries [2]	137	141	150	135	155	155	157
United States and Canada	118	123	131	119	134	138	134
Europe	144	150	159	139	167	162	167
European Economic Community [3]	139	143	152	132	160	155	159
European Free Trade Association [4]	149	153	160	145	169	157	168
Australia and New Zealand	141	143	150	131	154	157	158
Less industrialized countries [5]	170	191	206	187	205	213	220
Latin America [6]	173	193	210	194	207	217	221
Asia [7]	170	193	206	183	207	213	223
Communist Europe [8]	179	195	204	201	209	199	207
World	155	165	174	163	179	176	180
Chemicals, petroleum, and coal products:							
Non-Communist world	185	196	213	204	213	211	223
Industrialized countries [2]	186	196	213	205	214	211	223
United States and Canada	171	180	199	188	201	203	206
Europe	194	203	218	214	218	207	231
European Economic Community [3]	190	200	211	209	212	201	224
European Free Trade Association [4]	190	197	210	207	213	197	223
Australia and New Zealand	169	192	203	187	206	198	219
Less industrialized countries [5]	186	196	213	205	214	211	223
Latin America [6]	175	191	206	NA	NA	NA	NA
Asia [7]	187	201	224	220	225	218	232
Communist Europe [8]	213	234	258	255	261	256	259
World	191	203	222	215	223	220	230
OVERALL INDUSTRIAL PRODUCTION							
Non-Communist world	152	155	165	160	165	161	175
Industrialized countries [2]	150	152	162	157	163	158	172
United States and Canada	140	141	152	146	153	152	158
Europe	148	152	160	158	161	147	172
European Economic Community [3]	144	147	154	153	155	142	166
European Free Trade Association [4]	152	155	162	159	166	147	175
Australia and New Zealand	145	150	153	140	153	158	160
Less industrialized countries [5]	150	152	162	157	163	158	172
Latin America [6]	160	171	182	NA	NA	NA	NA
Asia [7]	164	178	191	185	185	192	201
Communist Europe [8]	177	191	205	208	207	201	203
World	159	165	176	173	177	172	183

NA Not available.

[1] Excludes Albania, the People's Republic of China, Mongolia, North Korea, and North Vietnam.

[2] Canada, the United States, all countries of Europe except those listed in footnotes 1 and 8, the Republic of South Africa, Israel, Japan, Australia, and New Zealand.

[3] Belgium, Denmark, France, West Germany, Ireland, Italy, Luxembourg, the Netherlands, and the United Kingdom. These numbers are not comparable to those given in previous editions of this chapter for the European Economic Community, which did not include data for Denmark, Ireland, and the United Kingdom, nations which joined the Community on January 1, 1973.

[4] Austria, Norway, Portugal, Sweden, and Switzerland. These numbers are not comparable to those given in previous editions of this chapter for the European Free Trade Association, which included data for Denmark and the United Kingdom.

[5] Countries not indicated in footnotes 1, 2, and 8.

[6] Corresponds to the United Nations classification "Caribbean, Central, and South America".

[7] Corresponds to the United Nations classification "Asia, excluding Israel and Japan".

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

Source: United Nations. Monthly Bulletin of Statistics. August 1973, pp. xii-xxv.

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

Commodity		1970	1971	1972 p
METALS				
Aluminum:				
Bauxite	thousand metric tons	57,786	63,509	65,314
Alumina	do	20,765	22,642	23,233
Unalloyed ingot metal	do	9,653	10,319	11,031
Antimony	do	70	64	68
Arsenic, white [2]	do	50	50	43
Beryl [2]	metric tons	6,221	5,302	4,139
Bismuth [2]	do	3,716	3,289	4,078
Cadmium	do	16,535	15,531	16,758
Chromite	thousand metric tons	6,053	6,267	6,024
Cobalt:				
Mine [2]	metric tons	23,854	21,731	23,382
Refined	do	21,322	22,388	20,617
Columbium-tantalum concentrates [3]	do	20,479	10,893	15,840
Copper:				
Mine	thousand metric tons	6,022	6,036	6,631
Smelter	do	6,125	6,114	6,684
Gold	thousand troy ounces	47,522	46,491	44,809
Iron and steel:				
Iron ore	thousand metric tons	769,163	779,336	768,359
Pig iron [4]	do	430,702	429,928	455,578
Ferroalloys [4]	do	9,676	9,695	9,668
Crude steel	do	594,418	580,476	627,116
Lead:				
Mine	do	3,394	2,424	3,492
Smelter	do	3,292	3,176	3,367
Magnesium	do	220	232	234
Manganese ore	do	18,222	21,019	21,452
Mercury	thousand 76-pound flasks	284	299	276
Molybdenum	metric tons	82,295	77,492	79,737
Nickel	thousand metric tons	628	635	639
Platinum-group metals	thousand troy ounces	4,239	4,084	4,263
Selenium [5]	metric tons	1,308	1,146	1,303
Silver	thousand troy ounces	300,991	288,883	298,765
Tellurium	metric tons	166	154	191
Tin:				
Mine [2]	thousand long tons	229	232	240
Smelter	do	r2224	232	236
Titanium concentrates:				
Ilmenite [3]	thousand metric tons	3,595	3,361	3,258
Rutile [2 3]	do	417	384	323
Tungsten, mine output, metal content	metric tons	32,368	36,625	38,390
Uranium oxide (U_3O_8) [3]	do	21,918	21,701	23,310
Vanadium [3]	do	18,299	16,847	18,065
Zinc:				
Mine	thousand metric tons	5,464	5,584	5,551
Smelter	do	4,827	4,695	4,857
NONMETALS				
Asbestos	do	3,494	3,585	3,737
Barite	do	3,935	3,838	3,959
Cement, hydraulic	do	571,204	605,649	639,006
Diamond:				
Gem	thousand carats	13,297	12,351	12,192
Industrial	do	29,198	28,751	31,513
Diatomite	thousand metric tons	1,591	1,553	1,520
Feldspar	do	2,528	2,494	2,912
Fluorspar	do	4,192	4,757	4,396
Graphite [2]	do	393	390	358
Gypsum	do	51,590	53,118	57,963
Magnesite [2]	do	8,857	9,049	11,890
Mica	do	164	170	239
Nitrogen fertilizers, contained nitrogen [6]	do	30,265	32,935	35,102
Phosphate rock	do	84,944	87,126	93,612
Potash (marketable), K_2O equivalent	do	18,155	19,792	20,433
Pumice [3]	do	14,335	15,800	16,084
Pyrites, including cupreous, gross weight	do	22,334	21,801	20,406
Salt	do	146,130	144,180	147,210
Strontium minerals [3]	metric tons	59,947	110,189	105,802
Sulfur, elemental:				
Frasch and from ores	thousand metric tons	12,851	12,646	13,073
Byproduct	do	9,667	10,441	9,810
Talc, soapstone, and pyrophyllite	do	4,823	4,724	4,758
Vermiculite [3]	do	391	416	465

See footnotes at end of table.

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

Commodity	1970	1971	1972 [p]
MINERAL FUELS AND RELATED MATERIALS			
Coal:[7]			
Anthracite ---million metric tons--	180	180	177
Bituminous ---do---	2,040	2,034	2,062
Lignite ---do---	789	800	802
Total ---do---	3,009	3,014	[8] 3,042
Coke:			
Metallurgical ---thousand metric tons--	350,453	338,361	340,456
Other types ---do---	25,778	22,397	18,375
Fuel briquets ---do---	125,549	91,136	77,999
Gas, natural, marketed ---billion cubic feet--	37,590	40,252	42,497
Peat ---thousand metric tons--	83,485	81,293	90,868
Petroleum, crude ---million barrels--	16,711	17,663	18,598

[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, People's Republic of China, Cuba, Czechoslavakia, East Germany, Hungary, Mongolia, North Korea, North Vietnam, Poland, Romania, U.S.S.R., and Yugoslavia, except in the case of vanadium which includes a figure for the U.S.S.R. alone.

[4] Data presented for pig iron includes relatively small quantities of ferroalloys (not duplicating quantities reported under ferroalloys) produced in a few countries that do not report ferroalloy production separate from pig iron production.

[5] Excludes production from countries listed in footnote 3 except for Yugoslavia.

[6] Years ending June 30 of that stated.

[7] Production of coal by some countries is not reported divided into the three categories listed; such output has been distributed to the three listed grades according to best available information from supplementary sources relating to the quality of such coals.

[8] Detail does not add to total because of independent rounding.

Table 3.—Approximate percentage distribution of world mineral commodity production by major area in 1972 [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 [3]	Communist [2]
METALS												
Aluminum:												
Bauxite	24.3	17.2	41.5	12.2	11.3	5.6	6.5	.8	22.1	58.5	87.9	12.1
Alumina	41.3	7.5	48.8	12.8	13.1	2.9	8.9	1.2	12.3	51.2	85.7	14.3
Aluminum ingot	42.6	1.6	44.2	22.7	14.9	2.2	12.0	1.3	2.7	55.8	83.8	16.2
Antimony, mine output	7.1	20.7	27.8	5.6	11.1	24.4	11.5	17.6	2.0	72.2	71.3	28.7
Arsenic, white [6 7]	11.8	2.7	14.5	62.2	16.6	5.5	1.2	XX	--	85.5	83.4	16.6
Beryllium, beryl concentrate [6 7]	(8)	44.0	44.0	.4	32.6	23.0	--	XX	--	56.0	67.4	32.6
Bismuth, mine output [6 7]	19.9	38.2	58.1	5.1	3.3	(8)	24.2	XX	9.3	41.9	96.7	3.3
Cadmium, smelter output	28.8	1.3	30.1	23.5	19.7	3.0	18.2	1.2	4.3	69.9	79.1	20.9
Chromium, chromite [7]	--	.5	.5	2.5	40.2	31.2	25.6	XX	--	99.5	59.8	40.2
Cobalt:												
Mine [6 7]	14.5	--	14.5	5.6	7.0	69.7	--	XX	3.2	85.5	86.5	13.5
Smelter [7]	4.5	--	4.5	14.3	8.0	73.2	NA	XX	--	95.5	92.0	8.0
Columbium-tantalum, concentrate [9]	23.4	61.8	85.2	(8)	XX	13.2	.4	XX	1.2	14.8	100.0	XX
Copper:												
Mine	34.9	14.9	49.8	3.8	13.3	21.2	5.6	1.7	4.6	50.2	85.0	15.0
Smelter	30.1	13.0	43.1	6.9	13.4	20.5	12.2	1.7	2.2	56.9	84.9	15.1
Gold, mine output	8.5	1.5	10.0	.6	15.5	68.3	2.3	.5	2.8	90.0	84.0	16.0
Iron and steel:												
Iron ore	15.6	10.1	25.7	16.1	28.0	7.8	5.3	8.8	8.3	74.3	63.2	36.8
Pig iron	20.1	1.7	21.8	24.6	26.0	1.2	17.8	7.2	1.4	78.2	66.8	33.2
Ferroalloys [7]	26.9	1.9	28.8	29.0	15.9	5.1	20.4	XX	.8	71.2	84.1	15.9
Crude steel	21.9	1.7	23.6	26.2	27.2	.9	17.0	4.0	1.1	76.4	68.8	31.2
Lead:												
Mine	32.4	8.0	40.4	13.1	19.5	5.9	4.1	5.5	11.5	59.6	75.0	25.0
Smelter	29.0	4.5	33.5	20.5	20.8	3.4	7.1	5.2	9.5	66.5	74.0	26.0
Magnesium, smelter	49.0	--	49.0	22.9	23.0	--	4.7	.4	--	51.0	76.6	23.4
Manganese, ore, gross weight	1.4	12.3	13.7	.3	37.4	28.9	9.2	4.7	5.8	86.3	57.9	42.1
Mercury, mine output	16.1	1.4	17.5	41.8	20.5	4.9	5.9	9.4	(8)	82.5	70.1	29.9
Molybdenum, mine output	78.0	8.4	86.4	.7	10.5	--	.5	1.9	(8)	13.6	87.6	12.4
Nickel, mine output [7]	47.1	.6	47.7	3.9	19.8	3.7	3.6	XX	21.3	52.3	74.6	25.4
Platinum-group metals, mine output [7]	9.8	.6	10.4	(8)	55.1	34.1	.4	XX	(8)	89.6	44.9	55.1
Selenium, smelter output [9]	53.0	.6	53.6	18.2	XX	--	25.7	XX	2.5	46.4	100.0	XX
Silver, mine output	42.7	18.7	61.4	6.1	15.8	3.6	5.1	.5	7.5	38.6	83.7	16.3
Tellurium, smelter output [9]	72.3	9.4	81.7	--	XX	--	18.3	XX	--	18.3	100.0	XX
Tin:												
Mine [6]	.2	14.6	14.8	1.8	12.4	7.4	50.4	8.3	4.9	85.2	79.3	20.7
Smelter	1.8	4.2	6.0	12.9	12.6	4.3	52.7	8.6	2.9	94.0	78.8	21.2
Titanium concentrate:												
Ilmenite [9]	44.6	.1	44.7	24.0	XX	--	9.5	XX	21.8	55.3	100.0	XX
Rutile [6 9]	(8)	.1	.1	--	XX	--	1.6	XX	98.3	99.9	100.0	XX
Tungsten, mine output	15.3	11.7	27.0	5.9	18.8	2.4	18.4	24.7	2.8	73.0	56.5	43.5
Uranium oxide (U_3O_8) [9]	69.3	.4	69.7	8.2	XX	22.1	--	XX	--	30.3	100.0	XX
Vanadium [7]	24.6	3.6	28.2	13.2	14.4	44.2	--	XX	--	71.8	85.6	14.4
Zinc:												
Mine	35.1	8.2	43.3	13.2	17.8	4.8	7.5	4.3	9.1	56.7	77.9	22.1
Smelter	22.1	2.6	24.7	25.8	20.9	3.4	14.6	4.5	6.1	75.3	74.6	25.4

NONMETALS												
Asbestos	44.3	.9	45.2	4.0	32.7	11.5	1.8	4.3	.5	54.8	63.0	37.0
Barite	29.0	7.9	36.9	29.6	13.0	3.8	9.1	7.0	.6	63.1	80.0	20.0
Cement, hydraulic	15.3	4.2	19.5	30.7	23.7	3.1	19.0	3.1	.9	80.5	73.2	26.8
Diamond:												
Gem [7]	--	2.5	2.5	--	15.2	82.1	.2	XX	--	97.5	84.8	15.2
Industrial [7]	--	1.6	1.6	--	23.3	75.1	([8])	XX	--	98.4	76.7	23.3
Diatomite [7 10]	36.4	.9	37.3	36.6	25.0	.6	.1	XX	.4	62.7	75.0	25.0
Feldspar [7 11]	26.6	2.3	28.9	36.3	10.0	1.5	23.0	XX	.3	71.1	90.0	10.0
Fluorspar	27.7	2.6	30.3	32.8	14.0	6.1	8.6	8.2	([8])	69.7	77.8	22.2
Graphite [6]	15.4	.9	16.3	11.2	22.4	7.0	13.7	29.4	--	83.7	48.2	51.8
Gypsum	35.4	2.5	37.9	37.3	11.3	2.2	8.4	1.1	1.8	62.1	87.6	12.4
Magnesite [6]	23.7	2.1	25.8	26.3	18.3	.8	5.1	23.5	.2	74.2	58.2	41.8
Mica [7]	61.6	2.4	64.0	3.5	16.3	2.0	14.2	XX	--	36.0	83.7	16.3
Nitrogen fertilizers, contained nitrogen	27.2	1.0	28.2	24.5	27.6	1.3	12.6	5.3	.5	71.8	67.1	32.9
Phosphate rock	40.0	.2	40.2	.1	23.7	26.9	2.2	2.5	4.4	59.8	73.8	26.2
Potash, K_2O equivalent (marketable) [7]	30.1	.1	30.2	26.7	38.9	1.4	2.8	XX	--	69.8	61.1	38.9
Pumice [9]	22.7	1.1	23.8	75.3	XX	.1	([8])	XX	.8	76.2	100.0	XX
Pyrite, including cupreous	4.3	--	4.3	35.5	29.2	4.7	12.8	12.2	1.3	95.7	58.6	41.4
Salt	35.1	3.3	38.4	23.0	13.9	1.5	7.7	12.7	2.8	61.6	73.4	26.6
Strontium minerals [9]	78.8	2.1	80.9	16.8	XX	1.7	.6	XX	--	19.1	100.0	XX
Sulfur:												
Native	63.4	1.4	64.8	.7	31.6	--	1.9	1.0	--	35.2	67.4	32.6
Byproduct, elemental	56.7	.1	56.8	23.1	6.3	.3	12.3	1.2	--	43.2	92.5	7.5
Talc, soapstone, and pyrophyllite	22.7	3.7	26.4	15.7	9.7	.5	41.3	5.2	1.2	73.6	85.1	14.9
Vermiculite [9]	65.8	1.9	67.7	--	XX	32.0	.3	XX	--	32.3	100.0	XX
MINERAL FUELS AND RELATED MATERIALS												
Coal:												
Anthracite and bituminous	25.0	.4	25.4	12.5	31.1	2.9	5.7	19.6	2.8	74.6	49.3	50.7
Lignite	1.6	--	1.6	20.3	74.1	--	1.0	([8])	3.0	98.4	25.9	74.1
Coke:												
Metallurgical	.9	18.0	18.9	24.9	32.2	1.1	13.8	7.7	1.4	81.1	60.1	39.9
Other types	--	.3	.3	14.4	38.5	.7	44.9	--	1.2	99.7	61.5	38.5
Fuel briquets [7 12]	--	--	--	15.5	68.2	([8])	14.7	XX	1.6	100.0	31.8	68.2
Gas, natural, marketed	61.2	2.1	63.3	10.5	22.0	.5	3.2	.2	.3	36.7	77.8	22.2
Peat [7]	.9	([8])	.9	8.6	90.4	--	.1	XX	--	99.1	9.6	90.4
Petroleum, crude	22.8	8.3	31.1	.7	16.3	11.2	38.8	1.2	.7	68.9	82.5	17.5

NA Not available. XX Not applicable.

[1] Percentages in this table have been calculated from the most reliable data available through May 1, 1974.

[2] Includes Cuba.

[3] Includes Yugoslavia.

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

[5] People's Republic of China, Mongolia, North Korea and North Vietnam.

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

[7] Percentages calculated from a total excluding data for countries listed in footnote 5 (Communist Near East and Asia) because output is unreported and no reliable basis for estimating output is available.

[8] Less than .05%.

[9] Percentages calculated from a total excluding data from countries listed in footnotes 4 and 5 (Communist Europe and Communist Near East and Asia) because quantity produced is unreported, and no reliable basis for estimating output is available.

[10] Includes moler (Denmark only), not included in total in previous editions.

[11] Includes aplite and saba (Japan only), not included in total in previous editions.

[12] Percentages calculated from a total excluding data for the U.S.S.R. and Poland, which were not available.

Table 4.—Value of world export trade in major mineral commodity group[1]

(Million U.S. dollars)

Commodity group	1967 r	1968 r	1969 r	1970 r	1971
Metals:					
All ores, concentrates, and scrap	5,030	5,590	6,340	8,010	7,370
Iron and steel	10,340	11,420	13,700	17,050	17,840
Nonferrous metals	8,010	9,440	10,870	12,200	10,400
Subtotal	23,380	26,450	30,910	37,260	35,610
Nonmetals (crude only)	2,000	2,170	2,260	2,390	2,500
Mineral fuels	20,870	23,020	24,860	28,610	35,780
Total	46,250	51,640	58,030	68,260	73,890
All commodities	213,870	238,150	271,880	311,510	348,110

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; and mineral fuels—SITC Section 3. Major items not included are the metals, metalloids, and metal oxides of SITC Group 513; mineral tar and crude chemicals from coal, petroluem, and natural gas of SITC Division 52; manufactured fertilizers of SITC Division 56; and nonmetallic mineral manufactures of SITC Groups 661, 662, 663, and 667.

Table 5.—Distribution of total value of export trade in major mineral commodity group, by group[1]

(Percent)

Commodity group	1967	1968	1969	1970	1971
Metals:					
All ores, concentrates, and scrap	10.9	10.8	10.9	11.7	10.0
Iron and steel	22.4	22.1	23.6	25.0	24.1
Nonferrous metals	17.3	18.3	18.8	17.9	14.1
Total	50.6	51.2	53.3	54.6	48.2
Nonmetals (crude only)	4.3	4.2	3.9	3.5	3.4
Mineral fuels	45.1	44.6	42.8	41.9	48.4
Grand total	100.0	100.0	100.0	100.0	100.0

[1] For detailed definitions of groups, see footnote 1, table 4.

Table 6.—Growth of value of export trade in major mineral commodity group, by group[1]

(Percent increase over previous year)

Commodity group	1967	1968	1969	1970	1971
Metals:					
All ores, concentrates, and scrap	5.5	11.1	13.4	26.3	−8.0
Iron and steel	6.9	10.4	20.0	24.5	4.6
Nonferrous metals	−.1	17.9	15.1	12.2	−14.8
All metals	4.1	13.1	16.9	20.5	−4.4
Nonmetals (crude only)	5.3	8.5	4.1	5.8	4.6
Mineral fuels	10.5	10.3	8.0	15.1	25.1
All major mineral commodity groups	6.9	11.7	12.4	17.6	8.2
All commodity groups	5.1	11.4	14.2	14.6	11.7

[1] For detailed definitions of groups, see footnote 1, table 4.

Table 7.—Significance of trade in major mineral commodity group [1] to total trade of various world areas, 1971

Area and country [2]	Value, million U.S. dollars				Major mineral commodities share of total (percent)	
	Major mineral commodity groups		All commodities			
	Exports from	Exports to	Exports from	Exports to	Exports from	Exports to
Northern North America:						
Canada	4,660	1,935	17,670	14,730	26.4	13.1
United States	3,730	8,785	43,490	45,550	8.6	19.3
Total	8,390	10,720	61,160	60,280	13.7	17.8
Latin America	[3] 5,300	2,052	12,540	12,900	[4] 42.3	15.9
Europe:						
Non-Communist:						
EEC	15,115	22,750	100,890	95,320	15.0	23.9
EFTA	5,425	10,290	48,330	51,380	11.2	21.3
Other	850	2,420	6,900	12,640	12.3	19.1
Subtotal	21,390	36,090	156,120	159,340	13.7	22.6
Communist	8,000	5,960	33,280	30,940	24.0	19.3
Total	29,390	42,050	189,400	190,280	15.5	22.1
Africa:						
Republic of South Africa	[5] 250	391	2,200	3,770	[4] 11.4	10.4
Other	[6] 7,015	1,713	12,840	13,720	[4] 54.6	12.5
Total	7,265	2,104	15,040	17,490	48.3	12.0
Near East	[7] 12,430	1,378	14,150	8,550	[4] 87.8	16.1
South Asia and Far East:						
Non-Communist:						
Japan	[8] 3,818	6,495	24,020	15,730	[4] 15.9	41.3
Other	[3] 2,475	3,095	14,020	19,120	[4] 17.7	16.2
Subtotal	6,293	9,590	38,040	34,850	16.5	27.5
Communist	[8] 244	1,016	4,630	4,960	[4] 5.3	20.5
Total	6,537	10,606	42,670	39,810	15.3	26.6
Australia and New Zealand	[3] 1,500	654	6,260	5,480	[4] 24.0	11.9
Not reported	3,078	4,326	6,890	13,320	44.7	32.5
Grand total	73,890	73,890	348,110	348,110	21.2	21.2

[1] For detailed definition of groups, see footnote 1, table 4.

[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 refers to the United Nations category "Other Asia"; (9) Communist Far East consists of the People's Republic of China, North Korea, Mongolia, and North Vietnam; (10) The category "Not reported" is derived by subtracting all listed figures from reported totals, and includes the Caribbean and Pacific Islands.

[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; includes mineral fuels and nonmetals 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; value of mineral fuels only; totals for other commodity groups presumably included under "Not reported."

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

Table 8.—Export origins and destinations for major mineral commodity group[1] shipments, by value, in 1971

(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	1,370	395	1,320	315	1,260	195	540	205	85	910
United States	485	790	640	315	1,500	1,120	2,740	1,550	260	4,040
Total	1,855	1,185	1,960	630	2,760	1,315	3,280	1,755	345	4,950
Latin America	930	170	1,010	(3)	3,190	66	800	300	76	810
Europe:										
Non Communist:										
EEC	600	7,400	2,130	475	4,510	2,010	4,910	3,710	840	11,280
EFTA	465	2,250	1,600	230	880	1,020	2,020	1,930	390	5,560
Other[4]	105	210	290	75	170	180	690	300	100	1,140
Subtotal	1,170	9,860	4,020	780	5,560	3,210	7,620	5,940	1,330	17,980
Communist	690	2,370	940	400	3,600	770	2,400	660	310	1,820
Total[4]	1,860	12,230	4,960	1,180	9,160	3,980	10,020	6,600	1,640	19,800
Africa:										
Republic of South Africa	(3)	(3)	(3)	135	115	3	150	50	8	180
Other	475	(3)	1,190	230	5,120	17	660	135	41	860
Total[4]	475	(3)	1,190	365	5,235	20	810	185	49	1,040
Near East	(3)	(3)	(3)	(3)	12,430	9	550	100	19	700
South Asia and Far East:										
Non-Communist:										
Japan	(3)	3,550	205	(3)	63	1,770	110	590	185	3,840
Other	530	195	430	(3)	1,320	105	1,140	350	70	1,430
Subtotal[4]	530	3,745	635	(3)	1,383	1,875	1,250	940	255	5,270
Communist	(3)	135	66	(3)	43	68	580	170	23	175
Australia and New Zealand	530	3,880	701	(3)	1,426	1,943	1,830	1,110	278	5,445
Not reported[4]	740	115	320	(3)	325	8	240	63	38	305
Total	980	260	259	325	1,254	29	310	287	55	2,730
Grand total	7,370	17,840	10,400	2,500	35,780	7,370	17,840	10,400	2,500	35,780

[1] For detailed definitions of groups, see footnote 1, table 4.
[2] For detailed definitions of areas listed below, see footnote 2, table 7.
[3] Not reported separately for this area; presumably included under "Not reported."
[4] Not reported in source but derived from data therein.

Table 9.—Direction of trade in major mineral commodities[1] in 1971

(Million U.S. dollars)

Source[2]	Destination[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	843	843	448	815	260	120	1,195	11	54
Canada	2,785	XX	2,785	88	395	779	43	1,217	10	12
Total[3]	2,785	843	3,628	536	1,210	1,039	163	2,412	21	66
Latin America[5]	1,693	401	2,094	379	801	537	76	1,414	17	3
Europe:										
Non-Communist:										
EEC	1,245	79	1,324	204	8,195	2,609	516	11,320	650	228
EFTA	462	89	551	90	1,775	1,757	323	3,855	240	80
Other[3]	97	3	100	12	320	164	41	525	129	22
Subtotal	1,804	171	1,975	306	10,290	4,530	880	15,700	1,019	330
Communist	46	13	59	27	1,180	944	391	2,515	4,365	99
Total[3]	1,850	184	2,034	333	11,470	5,474	1,271	18,215	5,384	429
Near East[6]	375	91	466	265	4,480	1,870	440	6,790	6	600
Africa:										
Republic of South Africa[7]	--	--	--	--	--	--	--	--	--	--
Other	441	50	491	91	3,826	1,303	276	5,405	85	13
Total[3]	441	50	491	91	3,826	1,303	276	5,405	85	13
Far East and South Asia:										
Non-Communist:										
Japan[8]	1,068	138	1,206	347	235	113	82	430	113	174
Other[5]	313	24	337	13	139	31	27	197	55	38
Subtotal[3]	1,381	162	1,543	360	374	144	109	627	168	212
Communist[8]	7	--	7	--	37	5	2	44	62	8
Total[3]	1,388	162	1,550	360	411	149	111	671	230	220
Australia and New Zealand[5]	90	22	112	6	159	166	20	336	5	5
Rest of world[3]	1,088	182	1,270	82	402	382	63	847	212	42
Grand total	9,710	1,935	11,645	2,052	22,750	10,920	2,420	36,090	5,960	1,378

See footnotes at end of table.

Table 9.—Direction of trade in major mineral commodities[1] in 1971—Continued

(Million U.S. dollars)

Source[2]	Destination[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	21	51	72	666	270	936	33	40	98	3,730
Canada	13	6	19	380	62	442	14	35	38	4,660
Total[3]	34	57	91	1,046	332	1,378	47	75	136	8,390
Latin America[5]	--	9	9	384	11	395	8	--	981	5,300
Europe:										
Non-Communist:										
EEC	55	478	533	33	140	173	108	17	558	15,115
EFTA	60	126	186	59	164	223	44	70	86	5,425
Other[3]	2	28	30	2	3	5	6	--	21	850
Subtotal	117	632	749	94	307	401	158	87	665	21,390
Communist	--	160	160	164	78	242	160	--	373	8,000
Total[3]	117	792	909	258	385	643	318	87	1,028	29,390
Near East[6]	140	450	590	2,310	790	3,100	60	195	358	12,430
Africa:										
Republic of South Africa[7]	--	--	--	--	--	--	--	--	250	250
Other	18	144	162	268	50	318	83	1	366	7,015
Total[3]	18	144	162	268	50	318	83	1	616	7,265
Far East and South Asia:										
Non-Communist:										
Japan[8]	67	128	195	XX	722	722	427	140	64	3,818
Other[5]	--	26	26	1,074	578	1,652	22	66	69	2,475
Subtotal[3]	67	154	221	1,074	1,300	2,374	449	206	133	6,293
Communist[8]	--	7	7	33	74	107	--	2	7	244
Total[3]	67	161	228	1,107	1,374	2,481	449	208	140	6,537
Australia and New Zealand[5]	9	6	15	794	86	880	25	66	50	1,500
Rest of world[3]	6	94	100	328	67	395	26	22	82	3,078
Grand total	391	1,713	2,104	6,495	3,095	9,590	1,016	654	3,401	73,890

XX Not applicable.

[1] For detailed listing of commodities included, see footnote 1, table 4. It should be noted that certain commodities excluded for specific areas as indicated by footnotes are presumably included in grand total.

[2] For detailed definitions of areas listed, see footnote 2, table 7.

[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] Includes mineral fuels only.

[7] Includes crude nonmetals and mineral fuels only.

[8] Excludes crude nonmetals and metal ores and scrap.

Table 10.—Iron ore consumption by selected major country

(Million metric tons)

Country	1970	1971	1972
European Economic Community:			
Belgium	18.7	15.5	20.2
France	45.4	42.4	44.9
Germany, West	47.2	42.3	44.1
Italy	10.2	r 10.2	e 11.5
Luxembourg	14.5	14.2	14.4
Netherlands	5.2	5.6	6.3
Total	141.2	r 130.2	141.4
European Free Trade Association:			
Austria	5.6	5.5	5.6
Norway	.9	1.1	1.1
Portugal	.3	.4	e.5
Sweden	r 8.7	7.7	4.0
United Kingdom	32.0	27.5	26.1
Total	r 47.5	42.2	37.3
Other non-Communist Europe:			
Finland	1.6	1.4	1.6
Spain	r 7.2	3.2	3.9
Total	r 8.8	4.6	5.5
Communist Europe:			
Czechoslovakia	e 13.2	3.4	e 3.3
Hungary	5.7	3.5	3.6
Poland	r 11.1	11.5	11.0
Romania	7.9	8.5	1.4
U.S.S.R	r 154.9	159.6	e 163.0
Yugoslavia	r 2.7	3.0	3.4
Total	r 195.5	189.5	185.7
Other:			
Japan	86.1	r 96.4	98.6
Turkey	e 1.2	r 2.0	e 2.0
United States	125.2	110.7	122.1
Total	212.5	r 209.1	222.7
Grand total	r 605.5	r 575.6	592.6

e Estimate. r Revised.

Source: United Nations Economic Commission for Europe. Quarterly Bulletin of Steel Statistics for Europe. V. 23, No. 4, New York, 1973.

Table 11.—Iron and steel scrap consumption by selected major country

(Thousand metric tons)

Country	1970	1971	1972
Europe Economic Community:			
Belgium [1 2]	3,487	3,467	4,360
France [2 3]	8,787	r 8,107	8,525
Germany, West [3]	23,684	21,176	22,713
Italy [2]	11,308	11,174	e 12,225
Luxembourg	1,663	1,545	1,634
Netherlands	2,281	2,227	2,242
Total	51,212	r 47,696	51,699
European Free Trade Association:			
Austria [2 3]	1,551	1,578	1,575
Denmark [2]	435	520	e 521
Norway	443	484	490
Portugal [1 2 3]	143	167	e 132
Sweden [1 2]	[4] 3,294	r 2,995	[3 4] 3,104
United Kingdom [1 3]	r 21,055	r 17,879	18,691
Total	r 26,921	r 23,623	24,513
Other non-Communist Europe:			
Finland	637	586	717
Spain [3]	4,775	e 5,116	e 6,008
Total	5,412	5,702	6,725
Communist Europe:			
Czechoslovakia	4,584	4,534	e 4,500
Hungary [1 3]	2,000	1,937	2,052
Poland	6,488	e 6,618	8,985
Romania [1 3 4]	r 3,720	2,995	2,830
U.S.S.R [5]	43,362	43,850	e 46,530
Yugoslavia [1 3]	1,482	1,546	1,535
Total	r 61,636	61,480	66,432
Other:			
Japan [3]	40,994	33,406	39,668
Turkey [1 2 3]	e 150	311	e 300
United States	77,619	e 75,000	e 75,000
Total	118,763	108,717	114,968
Grand total	r 263,944	247,218	264,337

e Estimate. r Revised.
[1] Excludes scrap consumption by rerollers.
[2] Excludes scrap consumption by iron foundries.
[3] Excludes scrap consumption by industry other than iron and steel.
[4] Excludes scrap consumption in blast furnaces.
[5] Consumption in blast furnaces and open hearth furnaces only (excludes consumption in other types of steel furnaces, rerolling mills, iron foundries, and industries other than the iron and steel industries).

Source: United Nations Economic Commission for Europe. Quarterly Bulletin of Steel Statistics for Europe. V. 23, No. 4, New York, 1973.

Table 12.—Estimated world [1] consumption of major nonferrous metals

Commodity	1970	1971 r	1972
Aluminum [2] thousand metric tons	r 9,570	10,960	12,073
Copper [3] do	r 7,178	7,239	7,772
Lead [4] do	3,542	3,588	3,723
Zinc [5] do	r 4,639	4,704	5,137
Tin [6] thousand long tons	r 168	172	172

r Revised.
[1] In general, figures are totals for major consuming countries only; sum 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 the International Tin Council. Communist countries (except Yugoslavia) are excluded; consumption of primary and secondary tin by these countries is estimated at about 60,000 long tons annually.

Source: Yearbook of the American Bureau of Metal Statistics. Fifty-second Annual Issue for the year 1972. New York, 1973, 152 pp.

Table 13.—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 [1]	Total energy: Per capita (kilograms)
Market economy:						
North America:						
1967	463	875	736	46	2,119	9,665
1968	481	930	790	47	2,249	10,148
1969	490	976	853	52	2,371	10,590
1970	495	1,026	897	54	2,472	10,918
1971	476	1,066	928	59	2,529	11,057
Other America:						
1967	7	67	11	5	90	619
1968	7	75	12	5	99	660
1969	8	82	13	6	107	700
1970	8	84	14	7	112	713
1971	8	91	16	7	122	757
Caribbean America:						
1967	5	74	34	2	115	1,031
1968	5	82	34	3	125	1,087
1969	6	84	36	3	129	1,090
1970	6	95	40	4	145	1,186
1971	7	100	41	4	151	1,201
Western Europe:						
1967	459	550	41	44	1,094	3,144
1968	456	602	58	45	1,161	3,317
1969	457	663	80	46	1,246	3,530
1970	441	755	108	48	1,352	3,802
1971	410	789	140	49	1,388	3,887
Africa:						
1967	54	37	2	2	94	290
1968	57	38	2	2	99	298
1969	57	40	2	2	102	298
1970	59	44	2	3	109	310
1971	63	53	2	3	122	340
Near East:						
1967	6	38	8	(3)	52	537
1968	6	40	11	1	58	585
1969	7	42	14	1	64	627
1970	7	49	25	1	81	776
1971	7	57	25	1	90	830
Far East:						
1967	159	202	10	12	384	369
1968	164	236	12	13	425	399
1969	175	273	12	14	474	435
1970	175	317	15	15	523	469
1971	167	347	15	16	545	478
Oceania:						
1967	33	30	(3)	2	66	3,634
1968	34	33	(3)	2	70	3,785
1969	35	35	(3)	3	73	3,885
1970	35	38	2	3	78	4,077
1971	36	38	3	3	81	4,128
Total market economy:						
1967	1,186	1,873	842	113	4,014	19,289
1968	1,210	2,036	919	118	4,286	20,279
1969	1,235	2,195	1,010	128	4,566	21,155
1970	1,226	2,408	1,103	135	4,872	22,251
1971	1,174	2,541	1,170	142	5,028	22,678
Centrally planned economy:						
Europe: [4]						
1967	737	325	242	13	1,316	3,883
1968	742	350	263	15	1,369	4,001
1969	762	378	284	16	1,441	4,175
1970	769	414	313	18	1,513	4,347
1971	786	445	342	18	1,590	4,531
Asia: [5]						
1967	253	20	(3)	5	278	369
1968	332	27	(3)	5	364	474
1969	364	28	(3)	5	398	509
1970	395	36	(3)	6	438	550
1971	428	43	(3)	6	478	580

See footnotes at end of table.

Table 13.—World energy consumption,[1] by energy source—Continued

(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[1]	Per capita (kilograms)
Centrally planned economy—Continued						
Total centrally planned economy:						
1967	990	345	242	18	1,594	4,252
1968	1,074	377	263	20	1,733	4,475
1969	1,126	406	284	21	1,839	4,684
1970	1,164	450	313	24	1,951	4,897
1971	1,214	488	342	24	2,068	5,111
World total:						
1967	2,175	2,217	1,083	131	5,607	1,652
1968	2,284	2,413	1,182	138	6,018	1,740
1969	2,360	2,602	1,295	148	6,404	1,816
1970	2,390	2,858	1,417	157	6,822	1,898
1971	2,387	3,029	1,513	167	7,096	1,931

[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 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 revision have not been identified as such by footnotes.

[2] Areas listed are those appearing in 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] Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the U.S.S.R.

[5] People's Republic of China, North Vietnam, Mongolia, and North Korea.

Source: United Nations. World Energy Supplies 1961–70 and 1968–71. Statistical Papers, Series J, Nos. 15 and 16, New York, 1972 and 1973, pp. 6–9.

Table 14.—Reserves of major mineral commodities, 1972

(Thousand metric tons unless otherwise specified)

Commodity	World total	Market economy countries	Centrally planned economies	Country distribution of principal reserves in market economy countries
METALS				
Aluminum, bauxite, gross weight million metric tons	15,000	14,300	700	Australia 4,600; Guinea 4,100; Jamaica 800.
Chromite, gross weight	2,449,000	2,402,000	47,000	Republic of South Africa 1,814,000; Southern Rhodesia 544,000.
Cobalt, metal content	2,480	1,940	540	Zaire 680; New Caledonia and Australia 670; Zambia 350.
Copper, metal content	308,000	272,000	36,000	United States 73,000; Chile 51,000; Canada 27,000; Zambia 24,000; Peru 20,000.
Iron ore:				
Gross weight million metric tons	254,000	136,000	118,000	Canada 37,000; Brazil 27,000; Australia 16,000.
Metal content do	87,700	56,400	31,300	Brazil 13,400; Canada 10,600; Australia 9,100.
Lead, metal content	93,000	78,000	15,000	United States 33,000; Canada 13,000; Australia 12,000.
Molybdenum, metal content	4,264	4,264	--	United States 2,858; Chile 816; Canada 454.
Nickel, metal content	[1] 68,000	43,000	[1] 25,000	New Caledonia 15,000; Canada 9,000; United States 1,000.
Tin, metal content thousand long tons	4,181	3,466	715	Thailand 1,400; Malaysia 600; Indonesia 550.
Tungsten, metal content	1,248	281	967	United States 79; Republic of Korea 46; Bolivia 39.
Zinc, metal content	118,000	100,000	18,000	Canada 31,000; United States 27,000; Australia 9,000.
NONMETALS				
Phosphate rock million metric tons	61,008	50,008	11,000	Morocco 36,000; United States 7,000; Spanish Sahara 1,500.
Potash do	23,315	15,120	8,195	Canada 10,931; West Germany 2,731.
Sulfur	1,219,000	1,133,000	86,000	Canada 391,000; United States 76,000; Japan 41,000.
MINERAL FUELS AND RELATED MATERIALS				
Coal:				
Bituminous million metric tons	1,808,201	756,501	1,051,700	United States 543,585; West Germany 56,245; Republic of South Africa 33,112.
Lignite do	412,860	284,584	128,276	United States 202,937; West Germany 29,937; Australia 20,230.
Natural gas billion cubic feet	[2] 1,755,240	1,103,413	[2] 651,827	United States 278,806; Netherlands 88,210; Canada 55,462.
Petroleum million 42-gallon barrels	631,900	533,700	98,200	Saudi Arabia 145,300; Kuwait 66,000; Iran 55,500; United States 38,100.

[1] Includes 16,329 thousand metric tons in Cuba.
[2] Includes 636,000 billion cubic feet in the U.S.S.R.

Source: United States Bureau of Mines Commodity Data Summary, January 1973, 168 pp.

Table 15.—Annual investment expenditure in the steel industry for selected countries

(Million dollars)

Country or country group	1970 [r]	1971
European Economic Community (EEC)	1,706	2,182
European Free Trade Association (EFTA)[1]	466	743
Other countries:		
Canada	176	196
Finland	47	58
Ireland	(2)	(2)
Japan[3]	1,855	2,447
Spain	251	207
Turkey	31	NA
United States	1,735	1,449

[r] Revised. NA Not available.
[1] Totals given exclude expenditures in Denmark and Switzerland and any non-British Steel Corp. investment in the United Kingdom.
[2] Less than ½ unit.
[3] Japanese fiscal years.

Source: Organization for Economic Cooperation and Development. The Iron and Steel Industry in 1971 and Trends in 1972, p. 80.

Table 16.—Non-Communist world petroleum capital expenditures and exploration expenses by geographic area

(Million dollars)

	1970	1971	1972
United States:			
Capital expenditures	8,225	7,250	9,050
Exploration expenses	665	715	740
Total	8,890	7,965	9,790
Other Western Hemisphere:			
Capital expenditures	2,760	3,350	3,120
Exploration expenses	275	255	250
Total	3,035	3,605	3,370
Western Europe:			
Capital expenditures	3,260	4,150	4,450
Exploration expenses	100	75	125
Total	3,360	4,225	4,575
Africa:			
Capital expenditures	790	975	1,005
Exploration expenses	100	150	175
Total	890	1,125	1,180
Near East:			
Capital expenditures	565	825	975
Exploration expenses	50	50	50
Total	615	875	1,025
Far East:			
Capital expenditures	2,050	2,500	2,700
Exploration expenses	150	150	200
Total	2,200	2,650	2,900
Unspecified: Capital expenditures (no exploration expenses)	2,475	2,750	3,650
Total:			
Capital expenditures	20,125	21,800	24,950
Exploration expenses	1,340	1,395	1,540
Total	21,465	23,195	26,490

Source: Energy Division, Chase National Bank, N.A. Capital Investments of the World Petroleum Industry, 1972, pp. 24–31.

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

(Million dollars)

	1970	1971	1972
Capital expenditures:			
Production:			
Crude oil and natural gas	6,650	6,520	9,590
Natural gasoline plants	580	695	515
Pipelines	850	1,200	1,230
Marine	r 2,575	2,875	3,775
Refineries	4,000	4,755	4,955
Marketing	3,220	3,380	2,825
Chemical plants	1,525	1,535	1,350
Other	r 725	840	710
Total	20,125	21,800	24,950
Exploration expenses	1,340	1,395	1,540
Grand total	21,465	23,195	26,490

r Revised.

Source: Energy Division, Chase Manhattan Bank, N.A. Capital Investments of the World Petroleum Industry, 1972, pp. 24–25.

Table 18.—U.S. direct foreign investment in mineral industries: Value, earnings, and income

(Million dollars)

Area and country	Mining, smeltering, and refining			Petroleum		
	Value	Earnings [1]	Income [2]	Value	Earnings [1]	Income [2]
1969 total	5,676	782	664	19,882	2,452	2,638
1970 total	6,168	675	553	21,714	2,935	2,608
1971 total	6,685	499	482	24,152	3,856	3,442
1972: [p]						
Canada	3,490	139	131	5,311	453	158
Latin American and other Western Hemisphere:						
Latin American Republics:						
Chile	359	NA	NA	NA	NA	NA
Venezuela	NA	NA	NA	1,546	55	247
Other	941	64	74	1,699	222	−22
Subtotal [3]	1,300	64	74	3,245	277	225
Other Western Hemisphere	782	94	98	1,022	18	20
Total	2,082	158	172	4,267	295	245
Europe:						
European Economic Community	10	NA	NA	3,494	40	−17
United Kingdom	5	NA	NA	2,321	122	63
Other West Europe	64	NA	NA	1,177	−45	−18
Total	79	NA	NA	6,992	117	28
Africa:						
South Africa, Republic of	136	36	18	215	NA	NA
Other	425	24	13	2,254	527	454
Total	561	60	31	2,469	527	454
Near East	5	NA	NA	1,807	2,419	2,449
Far East and Pacific:						
Japan	--	--	--	796	51	9
Australia	707	68	61	NA	NA	NA
New Zealand	8	--	--	NA	NA	NA
Other	199	(4)	1	1,550	287	246
Total	914	68	62	2,346	338	255
International shipping	--	--	--	2,321	318	304
Grand total [5]	7,131	418	399	26,399	4,552	3,950

[p] Preliminary. 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; excludes figures for detail indicated as not available.
[4] Less than ½ unit.
[5] Detail may not add to totals shown because of independent rounding and exclusion of some data in detail.

Source: U.S. Department of Commerce, Survey of Current Business. V. 53, No. 9, September 1973, pp. 24–26.

Table 19.—World merchant fleet distribution, by type [1]

	1968	1969	1970	1971	1972
Number of vessels:					
Tankers	3,895	4,071	4,232	4,431	4,581
Bulk carriers	2,609	2,748	2,954	3,218	3,539
Freighters	11,052	10,980	10,998	11,095	11,087
Other	1,805	1,771	1,796	1,800	1,802
Total	19,361	19,570	19,980	20,544	21,009
Gross tonnage:					
Tankers ---thousand tons	71,641	79,457	88,896	99,105	108,558
Bulk carriers ---do	37,596	41,746	47,199	55,009	64,822
Freighters ---do	62,559	62,960	63,159	64,038	65,179
Other ---do	12,446	12,084	12,147	12,150	11,984
Total ---do	184,242	196,247	211,401	230,302	250,543
Deadweight tonnage:					
Tankers ---do	117,135	133,421	153,075	173,196	192,894
Bulk carriers ---do	59,926	67,638	77,173	90,962	108,512
Freighters ---do	86,702	87,250	87,428	88,305	88,970
Other ---do	9,447	9,214	9,323	9,276	9,176
Total ---do	273,210	297,523	326,999	361,739	399,552

[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 20.—World shipping of tanker and dry cargo by loadings and unloadings

(Million metric tons)

	1968	1969	1970 r	1971 r	1972
Loaded:					
Tanker cargo	1,141	1,276	1,440	1,530	1,637
Dry cargo	966	1,036	1,165	1,167	1,224
Total	2,107	2,312	2,605	2,697	2,861
Unloaded:					
Tanker cargo	1,113	1,243	1,403	1,504	1,622
Dry cargo	972	1,024	1,127	1,144	1,225
Total	2,085	2,267	2,530	2,648	2,847

r Revised.

Source: United Nations. Monthly Bulletin of Statistics. V. XXXIII, January 1974, p. xxiii.

Table 21.—World shipping of tanker cargo by region

(Million metric tons)

Region	Loadings					Unloadings				
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Developed market economies:										
Australia, New Zealand	2	1	1	2	2	24	25	22	17	16
Canada	--	--	1	2	5	15	16	15	18	24
Japan	--	1	--	1	2	141	166	201	222	240
South Africa, Republic of	--	--	--	--	--	10	10	12	16	14
United States	4	4	5	3	3	145	156	162	174	206
Western Europe	70	79	100	98	111	554	620	705	737	781
Other	1	1	6	14	20	3	3	5	12	21
Total	77	86	113	120	143	892	996	1,122	1,196	1,302
Developing market economies:										
Caribbean	54	57	63	64	61	71	79	89	100	99
Far East	43	51	59	65	74	67	74	83	92	99
Near East	529	586	659	763	852	11	12	13	10	13
North Africa	177	210	226	185	176	16	17	18	18	17
Other Africa	12	35	63	83	96	14	14	14	14	15
Venezuela	176	178	181	168	152	--	--	--	--	--
Other Latin America	10	11	11	8	11	33	35	45	48	46
Other	--	--	--	2	--	1	3	--	2	3
Total	1,001	1,128	1,262	1,338	[1]1,421	213	234	262	284	292
Centrally planned economies:										
U.S.S.R	57	58	61	68	69	--	1	3	5	8
Other	5	4	4	3	3	8	13	16	18	19
Total	62	62	65	71	72	8	14	19	23	27

[1] As reported in source; detail adds to 1,422.

Source: United Nations. Monthly Bulletin of Statistics. V. XXVIII, January 1974, p. xxviii.

Table 22.—World shipping of dry cargo by region

(Million metric tons)

Region	Loadings					Unloadings				
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Developed market economies:										
Australia, New Zealand	51	72	93	115	121	16	16	15	16	16
Canada	78	70	95	94	94	34	36	38	37	38
Japan	30	40	42	51	51	179	204	235	239	277
South Africa, Republic of	14	12	15	15	18	4	4	6	8	7
United States	173	177	213	183	206	131	125	131	133	135
Western Europe	222	231	239	240	256	389	416	460	449	462
Other	2	3	2	3	3	3	5	6	5	4
Total	570	605	699	701	749	756	806	891	887	939
Developing market economies:										
Caribbean	25	27	32	28	30	11	11	13	13	13
Far East	76	85	94	95	98	66	68	69	77	83
Near East	8	8	9	8	10	17	19	19	25	28
North Africa	28	29	28	29	30	17	17	17	19	20
Other Africa	66	71	75	74	77	17	19	23	26	26
Venezuela	17	21	23	25	26	4	4	4	4	5
Other Latin America	84	93	105	110	106	29	31	32	33	40
Other	8	10	--	9	11	5	1	3	3	3
Total	312	344	366	378	388	166	170	180	200	218
Centrally planned economies:										
U.S.S.R	44	47	46	45	40	11	10	11	10	22
Other	40	40	44	44	48	38	37	45	47	47
Total	84	87	90	89	88	49	47	56	57	69

Source: United Nations. Monthly Bulletin of Statistics. V. XXVIII, January 1974, p. xxiii.

Table 23.—Distribution of world oil tanker tonnage, by size group [1]

Size group (deadweight tons)	1966		1972			
			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	27.9	14.4	1.1	0.9
25,000-45,000	25.3	25.5	28.1	14.5	4.2	3.5
45,000-65,000	21.2	21.3	22.5	11.6	.4	.3
65,000-125,000	21.8	21.9	40.2	20.7	11.4	9.5
125,000-205,000	1.1	1.1	13.1	6.8	10.5	8.7
205,000-285,000	--	--	58.6	30.2	71.7	59.7
285,000 and over	--	--	3.5	1.8	20.9	17.4
Total	99.4	100.0	193.9	100.0	120.2	100.0

[1] Includes vessels 2,000 deadweight tons and over.
[2] Excludes 16.8 million deadweight tons in bulk (multiple-cargo) carriers.

Source: British Petroleum Co. Ltd. BP Statistical Review of the World Oil Industry. Baynard Press, London, 1966, p. 15; 1972, p. 14.

Table 24.—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
1971								
Number of transits:								
In ballast:								
Atlantic to Pacific	1	39	5	1	100	162	566	874
Pacific to Atlantic	--	780	1	--	115	160	138	1,194
Total	--	819	6	1	215	322	704	2,068
Laden:								
Atlantic to Pacific	--	946	59	121	1,314	3,328	544	6,312
Pacific to Atlantic	2	198	5	109	1,060	3,139	1,126	5,639
Total	2	1,144	64	230	2,374	6,467	1,670	11,951
In ballast and laden:								
Atlantic to Pacific	1	985	64	122	1,414	3,490	1,110	7,186
Pacific to Atlantic	2	978	6	109	1,175	3,299	1,264	6,833
Grand total	3	1,963	70	231	2,589	6,789	2,374	14,019
Cargo moved (thousand metric tons):								
Atlantic to Pacific	--	14,848	2,985	709	34,856	21,000	1,141	75,539
Pacific to Atlantic	84	3,329	187	694	19,001	18,772	2,928	44,995
Total	84	18,177	3,172	1,403	53,857	39,772	4,069	120,534
1972								
Number of transits:								
In ballast:								
Atlantic to Pacific	1	53	9	1	350	260	592	1,266
Pacific to Atlantic	--	667	1	--	70	129	130	997
Total	1	720	10	1	420	389	722	2,263
Laden:								
Atlantic to Pacific	3	906	44	185	1,155	2,766	630	5,689
Pacific to Atlantic	3	256	9	170	1,304	2,892	1,180	5,814
Total	6	1,162	53	355	2,459	5,658	1,810	11,503
In ballast and laden:								
Atlantic to Pacific	4	959	53	186	1,505	3,026	1,222	6,955
Pacific to Atlantic	3	923	10	170	1,374	3,021	1,310	6,811
Grand total	7	1,882	63	356	2,879	6,047	2,532	13,766
Cargo moved (thousand metric tons):								
Atlantic to Pacific	115	15,096	2,030	1,180	28,605	15,487	1,144	63,657
Pacific to Atlantic	106	4,150	382	1,281	21,806	16,789	2,816	47,330
Total	221	19,246	2,412	2,461	50,411	32,276	3,960	110,987

Source: Panama Canal Co. Annual Reports for 1971 and 1972.

Table 25.—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		
	1970	1971	1972	1970	1971	1972	1970	1971	1972
METALS									
Aluminum:									
Bauxite and alumina	1,615	1,256	1,518	157	450	781	1,772	1,706	2,299
Metal, except scrap	65	76	76	183	94	67	248	170	143
Chromium, chromite	2	10	42	161	209	110	163	219	152
Copper:									
Ore and concentrate	101	46	28	187	249	252	288	295	280
Metal, except scrap	12	15	18	666	765	598	678	780	616
Iron and steel:									
Iron ore	289	575	478	3,993	3,557	1,830	4,282	4,132	2,308
Pig iron, steel ingots and other crude forms, except scrap	1,325	293	77	19	37	71	1,344	330	148
Semimanufactures (excluding tinplate)	2,002	1,890	1,499	6,243	6,494	7,793	8,245	8,384	9,292
Lead:									
Ore and concentrate	12	6	1	170	193	165	182	199	166
Metal, except scrap	5	6	9	183	253	209	188	259	218
Manganese ore and concentrate	99	208	184	76	122	142	175	330	326
Tin:									
Ore and concentrate	2	6	2	78	85	70	80	91	72
Metal (including tinplate)	134	129	110	90	103	109	224	232	219
Zinc:									
Ore and concentrate	140	165	168	216	349	347	356	514	515
Metal, except scrap	11	8	10	153	144	126	164	152	136
Other and unclassified:									
Ore and concentrate	54	115	97	623	789	621	677	904	718
Metal, except scrap	31	49	33	118	172	172	149	221	205
Metal scrap, all metals	3,975	2,689	1,415	34	18	57	4,009	2,707	1,472
NONMETALS									
Asbestos	229	262	183	50	55	49	279	317	232
Borax	8	10	12	456	398	392	464	408	404
Cement	169	170	152	15	15	15	184	185	167
Clays and clays products:									
Fire clay and kaolin	301	328	291	35	35	37	336	363	328
Brick and tile	77	79	75	151	131	176	228	210	251
Diatomaceous earth	4	4	14	52	52	30	56	56	44
Fertilizer materials:									
Nitrogenous:									
Ammonium compounds	350	350	400	58	26	13	408	376	413
Sodium nitrate	23	23	8	388	466	358	411	489	366
Phosphatic	3,792	4,544	4,276	6	2	2	3,798	4,546	4,278
Potassic	186	305	276	509	429	605	695	734	881
Unclassified	794	891	824	184	82	84	978	973	908
Sodium compounds:									
Salt	144	117	112	512	505	593	656	622	705
Other	77	118	105	29	23	22	106	141	127
Sulfur	213	172	101	306	428	687	519	600	788
MINERAL FUELS AND RELATED MATERIALS									
Coal and coke	21,648	22,181	14,341	26	382	509	21,674	22,563	14,850
Petrochemicals	354	324	369	237	294	383	591	618	752
Petroleum:									
Crude	4,199	4,712	5,172	1,710	1,330	1,821	5,909	6,042	6,993
Refinery products	10,526	9,514	8,744	1,513	1,859	1,961	12,039	11,373	10,705
Total	52,968	51,646	41,220	19,587	20,595	21,257	72,555	72,241	62,477

Source: Panama Canal Co. Annual Report, 1972, pp. 50–53.

Table 26.—Indexes of ocean freight rates

(1963=100, unless otherwise specified)

Year and quarter	Trip charter						Time charter				
	London tanker brokers panel	West Germany		Italy (general)	Norway		United Kingdom [1]				Norway (dry cargo)
		Dry cargo	Tankers		Dry cargo	Tankers	General	9,000-16,000 deadweight tons	20,000-40,000 deadweight tons	Over 40,000 deadweight tons	
1969	90	100	127	96	94	119	100	99	98	103	114
1970	119	146	250	142	122	243	181	134	168	181	166
1971: [2]											
First quarter	120	113	198	96	97	173	135	111	126	157	156
Second quarter	119	92	109	79	82	99	87	94	89	81	145
Third quarter	113	85	95	76	83	88	75	81	82	67	114
Fourth quarter	107	91	135	74	77	134	75	82	73	72	100
Annual average	118	99	144	87	90	133	93	92	93	94	132
1972: [2]											
First quarter	105	83	69	66	73	71	79	81	79	78	112
Second quarter	98	86	108	66	76	95	82	90	75	83	110
Third quarter	NA	102	117	85	85	120	95	87	93	101	119
Fourth quarter	NA	132	151	113	103	164	134	115	134	141	152
Annual average	NA	98	103	NA	82	104	98	93	95	101	119

NA Not available.

[1] The United Kingdom figures are shown with original base 1968=100. Table is further subdivided into vessel tonnage classes of deadweight tons, rather than commodity class.

[2] Quarterly figures are for the last month in the quarter except for the United Kingdom figures that are average for the quarter indicated.

Source: United Nations Monthly Bulletin of Statistics. June 1972, p. xxii; September 1973, p. xviii.

Table 27.—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]
1970	28.716	57.700	[7] 15.419	15.319	174.205	177.082
1971	29.000	51.433	[8] 13.815	16.128	167.348	154.564
1972:						
January	29.000	49.699	14.000	17.000	171.310	146.963
February	29.000	49.980	14.600	17.000	172.000	150.355
March	29.000	51.949	15.500	17.304	179.795	153.084
April	29.000	51.949	15.569	17.741	181.975	157.200
May	25.909	51.949	15.599	17.872	170.739	158.305
June	25.000	51.949	15.501	18.000	175.034	156.900
July	25.000	50.004	15.500	18.000	176.588	173.575
August	25.000	49.985	15.413	18.000	179.120	184.609
September	25.000	49.985	15.000	18.000	181.988	177.665
October	25.000	49.985	14.667	18.000	180.432	181.060
November	25.000	49.985	14.500	18.000	177.274	183.247
December	25.000	49.985	14.500	18.108	176.250	197.595
Annual average	26.409	50.617	15.029	17.752	176.875	168.380

[1] Unalloyed ingot 99.5%, delivered United States.

[2] Electrolytic copper, domestic refineries, on Atlantic seaboard.

[3] Refined lead, nationwide, except as noted.

[4] Prime western slab, f.o.b., East St. Louis.

[5] Straits tin, New York.

[6] Cents per troy ounce, 99.9 fine, New York.

[7] Refined lead, St. Louis.

[8] Separate St. Louis and New York prices discontinued December 13, 1971. Effective December 13, 1971, one delivered price, nationwide, replaced delivered New York basis quotations. Figure given here is nationwide monthly average for December 1971 only.

Source: Yearbook of the American Bureau of Metal Statistics. Fifty-second Annual Issue for the year 1972. New York, 1973, 152 pp.

Table 28.—Nonferrous metal prices in the United Kingdom

(Average, U.S. dollar equivalent per metric ton, unless otherwise noted) [1]

Year and month	Aluminum [2]	Copper [3]	Lead [4]	Zinc	Tin [5]	Silver [6]
1970	613.029	1,408.554	302.906	294.983	3,608.736	176.746
1971	628.648	1,086.276	253.684	310.316	3,515.003	154.195
1972:						
January	661.133	1,077.399	251.395	379.329	3,630.780	146.287
February	661.861	1,112.327	293.854	389.331	3,681.502	150.606
March	665.521	1,158.326	319.879	396.590	3,864.447	152.818
April	663.513	1,132.279	315.599	394.688	3,908.983	156.696
May	599.807	1,106.639	317.563	386.008	3,832.992	158.288
June	565.202	1,060.216	310.784	369.719	3,743.872	156.867
July	537.834	1,035.282	303.730	363.625	3,740.733	171.816
August	539.044	1,046.799	297.577	363.316	3,753.927	183.721
September	537.020	1,069.663	302.171	367.981	3,802.028	177.995
October	538.444	1,027.249	296.716	363.339	3,764.290	179.943
November	540.615	1,006.061	297.056	378.313	3,705.234	182.248
December	539.304	1,022.262	308.083	374.699	3,732.429	195.106
Annual average	586.488	1,070.242	301.546	377.371	3,767.680	168.569

[1] London Metal Exchange, average settlement prices.
[2] Ingot, 99.5%.
[3] Electrolytic wirebar.
[4] Refined pig lead, 99.97%.
[5] Standard tin.
[6] U.S. cents per troy ounce, 999 fine.

Table 29.—Nonferrous metal prices in Canada

(Average, U.S. cents per pound, unless otherwise noted)

Year and month	Aluminum [1]	Copper [2]	Lead [3]	Zinc [3]	Silver [4]
1970	28.26	55.629	15.149	14.172	177.142
1971	29.21	52.202	13.368	15.962	154.573
1972:					
January	29.33	50.078	13.694	16.900	147.740
February	29.36	50.350	14.526	16.920	150.287
March	29.54	52.705	15.524	17.884	153.619
April	29.63	52.851	15.793	18.077	157.188
May	(5)	53.214	16.179	19.213	158.197
June	(5)	52.796	16.335	19.397	156.883
July	(5)	50.731	16.261	19.310	173.554
August	(5)	50.640	16.286	19.340	184.587
September	(5)	50.611	16.277	19.329	177.641
October	(5)	50.624	15.797	19.334	181.227
November	(5)	50.386	15.192	19.243	183.351
December	(5)	50.495	15.049	19.115	197.199
Annual average	(5)	51.292	15.572	18.666	168.401

[1] Ingot 99.5% f.o.b. delivered basis 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] United States cents per troy ounce, average price of Cominco, Ltd.
[5] Canadian aluminum producers ceased quoting a "published" price effective May 8, 1972.

Source: Yearbook of the American Bureau of Metal Statistics. Fifty-second Annual Issue for the Year 1972. New York, 1973, 152 pp.

Table 30.—Mineral commodity export price indexes

(1963=100)

Year and quarter	Metal ores	Fuels	All crude minerals
1970	122	r 108	r 111
1971	126	127	127
1972:			
First quarter	136	141	140
Second quarter	135	143	141
Third quarter	136	143	141
Fourth quarter	130	144	140
Annual average	134	143	141

r Revised.

Source: United Nations, Monthly Bulletin of Statistics. New York, September 1973, p. xv.

Table 31.—Analysis of export price indexes

(1963=100)

Year and quarter	Developed areas		Developing areas	
	Total minerals	Nonferrous base metals	Total minerals	Nonferrous base metals
1970	122	167	104	191
1971	145	151	119	160
1972:				
First quarter	153	156	134	167
Second quarter	153	151	135	166
Third quarter	155	146	136	158
Fourth quarter	155	146	134	154
Annual average	154	150	135	161

Source: United Nations. Monthly Bulletin of Statistics. New York, September 1973, p. xv.

Table 32.—Leading world producers of bauxite

(Gross weight, thousand metric tons)

Country	1970	1971	1972 p
Australia	9,256	12,541	14,433
Jamaica	12,010	12,441	12,114
Surinam	r 6,022	6,718	e 6,902
U.S.S.R.e 1	r 4,300	4,500	4,700
Guyana	r 4,417	4,234	3,727
France	2,992	3,184	3,254
Guinea	2,490	2,630	e 2,600
Greece	2,292	2,861	2,408
Hungary	2,022	2,090	2,358
Yugoslavia	2,099	1,959	2,197
United States	2,115	2,020	1,841
Total	r 50,015	55,178	56,534
All others	r 7,771	8,331	8,780
Grand total	r 57,786	63,509	65,314

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

Table 33.—Leading world producers of aluminum

(Thousand metric tons)

Country	1970	1971	1972 p
United States	3,607	3,561	3,739
U.S.S.R.e	1,100	1,180	1,250
Japan	r 733	893	1,015
Canada	972	1,017	925
Norway	r 522	530	548
Germany, West	309	428	445
France	381	384	392
Australia	206	223	206
India	161	178	179
United Kingdom	40	119	171
Netherlands	75	116	166
Ghana	113	111	144
Spain	120	127	140
China, People's Republic of e	130	140	140
Total	r 8,469	9,007	9,460
All others	r 1,184	1,312	1,571
Grand total	r 9,653	10,319	11,031

e Estimate. p Preliminary. r Revised.

Table 34.—Leading world producers of mine copper

(Copper content of ore, thousand metric tons)

Country	1970	1971	1972 p
United States [1]	1,560	1,381	1,510
Canada [1]	610	654	726
Chile	711	717	725
Zambia	684	652	718
U.S.S.R. e	570	620	665
Zaire	386	406	437
Peru	220	213	225
Philippines	160	198	185
Australia	158	174	180
South Africa, Republic of	149	157	162
Papua New Guinea	--	--	124
Poland	72	90	123
Japan e	r 120	121	114
Total	r 5,400	5,383	5,894
All others	r 622	653	737
Grand total	r 6,022	6,036	6,631

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

Table 35.—Leading world producers of iron ore, iron ore concentrates, and iron ore agglomerates

(Thousand metric tons)

Country	1970	1971	1972 p
U.S.S.R	195,492	203,008	208,000
United States	91,201	82,058	76,644
Australia	51,189	62,100	63,870
France	56,805	55,862	54,253
China, People's Republic of e	44,000	45,000	46,000
Brazil e	40,200	42,700	42,100
Canada	47,459	43,976	40,165
India	31,366	34,261	35,036
Sweden	r 31,509	34,367	33,124
Liberia	r 23,661	24,634	24,594
Venezuela	22,100	20,300	18,465
South Africa, Republic of	7,728	10,678	11,323
Peru	9,713	8,831	9,414
Mauritania	9,103	8,457	9,298
United Kingdom	12,018	10,229	9,048
Total	r 673,544	686,461	681,334
All others	r 95,619	92,875	87,025
Grand total	r 769,163	779,336	768,359

e Estimate. p Preliminary. r Revised.

Table 36.—Leading world producers of crude steel [1]

(Thousand metric tons)

Country	1970	1971	1972 p
U.S.S.R	r 115,886	120,637	126,000
United States	119,308	109,264	120,874
Japan	93,322	88,557	96,900
Germany, West	45,041	40,314	43,705
United Kingdom	28,316	24,175	25,321
France	23,773	22,859	24,089
China, People's Republic of e	18,000	21,000	23,000
Italy	17,277	17,452	19,815
Belgium	12,607	12,444	14,532
Poland	11,795	12,738	13,471
Czechoslovakia	11,480	12,069	12,727
Canada	11,200	11,040	11,859
Spain	7,429	7,759	9,530
Romania	6,517	6,803	7,401
Australia	6,822	6,736	6,744
Total	r 528,773	513,847	555,968
All others	r 65,645	66,629	71,148
Grand total	r 594,418	580,476	627,116

e Estimate. p Preliminary. r Revised.
[1] Steel ingots and castings.

Table 37.—Leading world producers of mine lead

(Lead content of ore, thousand metric tons)

Country	1970	1971	1972 p
United States [1]	519	525	561
U.S.S.R.e	440	450	460
Australia	457	403	399
Canada	r 353	393	380
Peru [1]	157	178	189
Yugoslavia	127	124	123
Mexico [1]	177	157	161
China, People's Republic of e	100	110	110
Bulgaria	96	100	102
Total	r 2,426	2,440	2,485
All others	r 968	984	1,007
Grand total	r 3,394	3,424	3,492

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

Table 38.—Leading world producers of manganese ore

(Gross weight, thousand metric tons)

Country	1970	1971	1972 p
U.S.S.R	6,841	7,318	7,800
South Africa, Republic of	2,679	3,237	3,271
Gabon	1,453	1,866	1,937
Brazil	1,879	2,602	2,608
India	1,651	1,841	1,624
Australia	751	1,050	1,207
China, People's Republic of e	1,000	1,000	1,000
Ghana	r 405	599	498
Zaire	347	387	369
Mexico	274	267	296
Japan	270	285	261
Total	r 17,550	20,452	20,871
All others	r 672	567	581
Grand total	r 18,222	21,019	21,452

e Estimate. p Preliminary. r Revised.

Table 39.—Leading world producers of mine tin

(Tin content of ore, long tons)

Country	1970	1971	1972 p
Malaysia	72,630	74,253	75,617
Bolivia	r 28,944	29,533	31,056
U.S.S.R.e	27,000	28,000	28,000
Thailand	21,435	21,346	21,717
Indonesia	18,761	19,411	20,992
China, People's Republic of e	20,000	20,000	20,000
Australia	8,689	9,639	11,765
Nigeria	7,833	7,210	6,625
Total	r 205,292	209,392	215,772
All others	r 23,208	22,840	23,830
Grand total	r 228,500	232,232	239,602

e Estimate. p Preliminary. r Revised.

Table 40.—Leading world producers of mine zinc

(Zinc content of ore, thousand metric tons)

Country	1970	1971	1972 p
Canada	r 1,239	1,268	1,201
U.S.S.R.e	610	650	650
Australia	487	450	502
United States [1]	485	456	434
Peru [1]	299	387	358
Japan	280	294	281
Mexico [1]	266	265	272
Poland	187	194	195
Korea, North e	130	135	140
Germany, West	129	132	122
Zaire	105	131	112
Sweden	93	99	110
Italy	111	106	103
China, People's Republic of e	100	100	100
Yugoslavia	101	99	97
Total	r 4,622	4,766	4,677
All others	r 842	818	874
Grand total	r 5,464	5,584	5,551

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

Table 41.—Leading world producers of hydraulic cement

(Thousand metric tons)

Country	1970	1971	1972 p
U.S.S.R	r 95,248	100,296	104,040
United States (including Puerto Rico)	r 67,693	73,684	75,929
Japan	57,189	59,463	60,637
Germany, West	38,325	41,013	43,146
Italy	r 33,076	31,793	33,459
France	r 29,009	28,948	30,288
Spain (including the Canary Islands)	r 16,702	16,993	19,440
United Kingdom	17,057	17,896	18,048
India	13,543	14,894	15,700
China, People's Republic of e	10,000	12,000	14,000
Poland	12,180	13,082	13,986
Brazil	9,002	9,803	11,381
Romania	8,127	8,523	9,212
Canada	7,208	8,225	9,081
Mexico	r 7,180	7,362	8,602
Germany, East	7,987	8,473	8,950
Turkey	6,372	7,548	8,424
Czechoslovakia	r 7,402	7,956	8,045
Total	r 443,300	467,952	492,368
All others	r 127,904	137,697	146,638
Grand total	r 571,204	605,649	639,006

e Estimate. p Preliminary. r Revised.

Table 42.—Leading world producers of nitrogen fertilizer compounds

(Thousand metric tons of contained nitrogen)

Country	1970 [1]	1971 [1]	1972 [1] p
United States (including Puerto Rico)	7,632	8,161	8,318
U.S.S.R	4,509	5,423	6,055
Japan	2,131	2,105	2,121
China, People's Republic of e	1,040	1,230	1,650
France	1,313	1,351	1,401
Germany, West	1,574	1,505	1,321
Poland	938	1,030	1,081
Italy	960	956	1,034
Netherlands	893	930	1,004
India e	r 731	846	978
United Kingdom	710	748	773
Total	r 22,431	24,285	25,736
All others	r 7,834	8,650	9,366
Grand total	r 30,265	32,935	35,102

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

Table 43.—Leading world producers of phosphate rock [1]

(Thousand metric tons)

Country	1970	1971	1972 [p]
United States	35,143	35,277	37,041
U.S.S.R. [e 2]	20,800	21,650	22,000
Morocco	11,399	12,008	15,034
Tunisia	3,016	3,162	3,387
China, People's Republic of [e]	1,700	2,200	2,600
Nauru [3]	2,114	1,867	2,000
Total	74,172	76,164	82,062
All others	[r] 10,772	10,962	11,550
Grand total	[r] 84,944	87,126	93,612

[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 44.—Leading world producers of marketable potash

(Thousand metric tons K_2O equivalent)

Country	1970	1971	1972 [p]
U.S.S.R.	4,087	4,807	[e] 5,500
Canada	3,103	3,629	3,747
Germany, West	2,645	2,915	2,845
Germany, East	2,419	2,426	[e] 2,458
United States	2,476	2,347	2,412
France	1,904	2,000	[e] 1,750
Total	16,634	18,124	18,712
All others	[r] 1,521	1,668	1,721
Grand total	[r] 18,155	19,792	20,433

[e] Estimate. [p] Preliminary. [r] Revised.

Table 45.—Leading world producers of pyrite

(Gross weight, thousand metric tons)

Country	1970	1971	1972 [p]
U.S.S.R. [e]	4,000	4,250	4,500
China, People's Republic of [e]	2,000	2,000	2,000
Spain	[r] 2,103	2,021	2,166
Japan	2,764	2,343	1,579
Italy	1,518	1,504	1,382
Finland	963	866	857
Romania	807	[e] 840	[e] 840
Norway	[r] 740	781	795
United States	859	821	753
Cyprus	[r] 940	830	638
Korea, North	500	500	500
Germany, West	575	592	486
Sweden	[r] 573	495	[e] 490
South Africa, Republic of	868	750	439
Total	[r] 19,210	18,593	17,425
All others	[r] 3,124	3,208	2,981
Grand total	[r] 22,334	21,801	20,406

[e] Estimate. [p] Preliminary. [r] Revised.

Table 46.—Leading world producers of salt

(Thousand metric tons)

Country	1970	1971	1972 p
United States (including Puerto Rico)	41,665	40,012	40,869
China, People's Republic of e	16,000	16,500	18,000
U.S.S.R	12,400	12,000	e 12,000
Germany, West	10,447	8,921	e 9,181
United Kingdom	9,188	9,245	8,778
India (including Goa)	5,588	5,430	6,500
France	5,664	5,495	5,206
Canada	4,862	5,028	5,021
Mexico	4,153	4,360	4,558
Italy	r 4,383	4,576	4,079
Australia	3,071	3,787	e 4,000
Netherlands	r 2,871	3,167	2,803
Poland	r 2,903	2,959	3,010
Romania	r 2,862	2,948	e 2,950
Germany, East	2,180	2,221	2,250
Brazil	r 1,826	1,477	2,177
Spain	r 2,054	1,960	1,800
Total	r 132,117	130,086	133,182
All others	r 14,013	14,094	14,028
Grand total	r 146,130	144,180	147,210

e Estimate. p Preliminary. r Revised.

Table 47.—Leading world producers of elemental sulfur

(Thousand metric tons)

Country	1970	1971	1972 p
United States	8,676	8,758	9,366
Canada	4,439	4,796	3,539
Poland	2,683	2,713	2,935
France	1,735	1,806	1,730
U.S.S.R.e	1,600	1,700	1,700
Mexico	1,381	1,178	944
Japan	342	409	499
China, People's Republic of e	250	250	250
Germany, West	176	184	219
Italy	143	146	167
Total	21,425	21,940	21,349
All others	r 1,093	1,147	1,534
Grand total	r 22,518	23,087	22,883

e Estimate. p Preliminary. r Revised.

Table 48.—Leading world producers of coal (all grades)

(Million metric tons)

Country	1970			1971			1972 p		
	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total
U.S.S.R.[1]	148	476	624	153	488	641	e 155	e 500	655
United States	5	550	[2] 556	6	503	509	10	537	547
China, People's Republic of	(3)	r 380	r 380	(3)	410	410	(3)	420	420
Germany, East	261	1	262	263	1	264	248	1	249
Germany, West	108	r [4] 117	r 225	104	[4] 117	221	110	103	213
Poland	33	140	173	35	145	180	38	152	190
United Kingdom	--	r 145	r 145	--	147	147	--	120	120
Czechoslovakia	82	28	110	85	29	[2] 113	86	28	[2] 113
Australia	24	49	73	23	49	72	24	60	[2] 83
India	4	74	[2] 77	4	71	75	3	75	78
South Africa, Republic of	--	55	55	--	59	59	--	58	58
Korea, North e	(5)	27	[2] 28	(5)	30	[2] 31	(5)	34	34
France	3	37	40	3	33	36	3	e 30	33
Yugoslavia	28	1	[2] 28	30	1	31	30	1	31
Bulgaria	29	(5)	29	27	(5)	27	28	(5)	28
Japan	(5)	r 44	r 44	(5)	33	[2] 34	(5)	28	28
Hungary	24	r 3	r 27	23	4	27	22	4	26
Total	749	r 2,127	r 2,876	756	2,120	[2] 2,877	757	2,151	[2] 2,906
All others	40	r 93	r 133	44	94	[2] 137	45	89	134
Grand total	789	r 2,220	r 3,009	800	2,214	3,014	802	2,240	[2] 3,042

e Estimate. p Preliminary. r Revised.

[1] Excludes output from the U.S.S.R. controlled portion of Svalbard (Spitzbergen).

[2] Detail for separate grades (lignite and anthracite plus bituminous) does not add to listed total for all grades because of independent rounding.

[3] Output small, included under anthracite and bituminous.

[4] Includes pech coal.

[5] Less than ½ unit.

Table 49.—Leading world producers of marketed natural gas

(Billion cubic feet)

Country	1970	1971	1972 p
United States	21,921	22,493	22,532
U.S.S.R	6,990	7,501	7,800
Canada	2,277	2,499	2,914
Netherlands	1,107	1,536	2,052
Romania	884	944	954
United Kingdom	r 398	661	953
Germany, West	r 460	555	636
Italy	r 465	473	499
Mexico	481	479	496
Iran	r 71	299	448
Venezuela	349	368	388
France	243	252	265
Argentina	212	229	218
Poland	183	190	206
Kuwait	r 180	158	180
Total	r 36,221	38,637	40,541
All others	r1,369	1,615	1,956
Grand total	r 37,590	40,252	42,497

p Preliminary. r Revised.

Table 50.—Leading world producers of crude oil

(Million 42-gallon barrels)

Country	1970	1971	1972 p
United States	3,517	3,454	3,455
U.S.S.R	2,595	2,778	2,896
Saudi Arabia	1,387	1,741	2,202
Iran	1,397	1,662	1,844
Kuwait	1,090	1,167	1,201
Venezuela	1,353	1,295	1,178
Libya	1,209	1,008	820
Nigeria	396	558	665
Canada	461	492	561
Iraq	570	624	529
United Arab Emirates [1]	284	387	440
Indonesia	312	326	396
Algeria	372	280	385
China, People's Republic of e	146	186	216
Mexico	r 178	177	185
Qatar	132	157	177
Argentina	143	155	158
Australia	65	113	120
Romania	102	102	105
Oman	121	107	103
Egypt, Arab Republic of	119	107	78
Total	r 15,949	16,876	17,714
All others	r 762	787	884
Grand total	r 16,711	17,663	18,598

e Estimate. p Preliminary. r Revised.
[1] Abu Dhabi and Dubai, formerly listed under Trucial States.

Table 51.—Major world trade in bauxite and alumina [1]

(Thousand metric tons)

Source country	1971 production by source country [2]	1971 export by source country [2]	Recipient country [3]											
			United States	Canada	Austria	France	West Germany	Italy	Norway	Sweden	United Kingdom	U.S.S.R.	Japan	Selected others [4]
Bauxite:														
Australia	12,541	NA	141	259	--	325	1,459	2	--	--	16	--	2,632	222
Dominican Republic	1,311	NA	1,112	--	--	--	--	--	--	--	--	--	--	--
France	3,184	109	--	(5)	--	XX	43	14	--	--	50	--	--	5
Ghana	330	NA	--	15	--	--	33	--	--	--	300	--	--	--
Greece	2,861	952	35	--	--	94	69	--	5	17	62	526	3	118
Guinea	2,630	NA	16	--	--	--	--	127	--	--	--	211	--	3
Guyana	4,234	2,785	527	2,130	--	46	45	20	--	6	3	--	18	84
Haiti	643	589	586	--	--	--	--	--	--	--	--	--	--	--
Hungary	2,090	700	--	--	--	--	77	--	--	--	--	--	--	--
India	1,517	54	--	--	--	--	2	13	--	--	--	--	30	--
Indonesia	1,238	NA	--	--	--	--	--	11	--	--	--	--	1,103	--
Jamaica	12,440	7,712	9,106	335	--	--	--	--	--	--	--	--	--	--
Malaysia	978	984	--	--	--	--	--	--	--	--	--	--	835	--
Sierra Leone	590	561	--	58	--	--	414	78	--	--	--	--	--	--
Surinam	6,718	3,597	2,946	299	20	32	48	18	--	--	14	--	12	93
United States	2,020	34	XX	292	--	--	13	--	--	2	--	--	22	--
Yugoslavia	1,959	1,883	--	--	--	--	607	236	--	--	--	600	--	2
Other and not specified	6,257	NA	16	1	4	8	21	29	1	9	2	63	14	39
Total	63,541	NA	14,485	3,389	24	505	2,831	548	6	34	447	1,400	4,699	566
Alumina:														
Australia	2,671	NA	1,125	259	--	--	--	--	--	--	--	--	498	62
Canada	1,140	19	130	XX	--	2	--	2	--	--	--	--	--	--
France	1,215	347	76	--	--	XX	25	45	29	--	2	--	--	177
Germany, West	826	233	2	--	75	5	XX	3	2	23	2	--	1	101
Greece	464	218	57	--	--	--	--	14	--	--	--	161	--	7
Guinea	665	NA	--	--	3	--	129	--	173	--	--	--	--	177
Guyana	310	307	12	55	--	--	--	--	146	42	13	--	--	26
Hungary	467	428	--	--	86	--	--	--	--	--	--	--	--	9
Jamaica	1,812	1,779	416	335	--	--	--	--	391	116	250	20	--	60
Japan	1,603	250	62	--	--	--	--	--	--	--	--	--	XX	19
Surinam	1,276	1,167	420	--	--	--	180	--	175	--	--	--	--	226
United States	6,544	980	XX	275	--	2	16	3	194	14	--	447	1	1
Yugoslavia	123	24	--	--	21	--	--	--	--	--	--	--	--	--
Other and not specified	3,527	NA	1	1	8	1	--	3	46	2	5	127	6	20
Total	22,643	NA	2,301	925	193	10	350	70	1,156	197	272	755	506	885

NA Not available. XX Not applicable.

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

[2] As reported in latest country chapter of Volume III, Minerals Yearbook. 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 and other sources. 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 and official country source data, 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 Statistical Office of the United Nations except for the U.S.S.R. figures and Canadian alumina figures which are from official Soviet and Canadian sources.

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

[5] Less than ½ unit.

Table 52.—Major world trade [1] in unrefined and refined unwrought copper in 1971

(Thousand metric tons)

Source country	Destination							
	Belgium-Luxembourg	Brazil	Czechoslovakia	France	Germany East	Germany West	Italy	Japan
Belgium-Luxembourg	XX	--	--	106	--	65	24	--
Canada	7	3	--	11	--	31	8	--
Chile	15	11	1	47	--	167	66	113
Germany, West	12	5	6	10	--	XX	4	--
Peru	20	3	--	--	--	17	(2)	9
U.S.S.R	--	--	37	--	--	1	--	--
United Kingdom	(2)	1	(2)	3	--	10	13	6
United States	16	17	--	20	--	53	22	9
Zaire [3]	267	--	--	33	--	3	43	16
Zambia	17	19	--	59	--	45	70	142
Other and unspecified [4]	6	--	(2)	27	2	70	9	16
Total	360	59	44	316	2	462	259	311

Source country	Destination							
	Netherlands	Spain	Sweden	Switzerland	United Kingdom	United States	Other and unspecified	Total
Belgium-Luxembourg	21	--	--	--	--	--	59	275
Canada	(2)	2	4	3	99	107	8	283
Chile	7	14	22	3	101	52	65	684
Germany, West	3	6	1	9	11	3	41	111
Peru	12	1	--	--	--	66	16	144
U.S.S.R	57	--	--	--	3	--	76	174
United Kingdom	8	2	2	1	XX	3	19	68
United States	6	(2)	2	2	12	XX	34	193
Zaire [3]	7	--	--	--	5	--	--	374
Zambia	7	6	15	11	102	6	130	629
Other and unspecified [4]	12	5	4	3	61	8	21	244
Total	140	36	50	32	394	245	469	3,179

XX Not applicable.

[1] Unless otherwise specified, data are compiled from export statistics for countries listed as source countries in stub of table.

[2] Less than ½ unit.

[3] Compiled from import statistics of selected trading partners.

[4] Includes the following countries (total exports in thousand tons in parentheses following country name): Australia (57); Austria (7); Denmark (3); Finland (8); France (13); Israel (18); Italy (4); Japan (11); the Netherlands (5); New Zealand (2); Norway (34); Spain (34); Switzerland (3); and Yugoslavia (46).

Table 53.—Major world trade in iron ores, concentrates, and agglomerates (excluding roasted pyrite) [1] in 1971

(Thousand metric tons)

Source country	Recorded total 1971 export of source country [3]	Recorded imports of principal recipient country [2]						
		Canada	United States	Belgium-Luxembourg	Czechoslovakia	France	Germany, West	Hungary
Algeria	1,834	--	--	393	--	--	--	--
Angola	5,498	--	--	114	--	683	1,125	--
Australia	52,034	--	1,023	1,088	--	803	1,786	--
Brazil	31,020	91	1,801	1,455	198	2,221	6,913	--
Canada	34,164	XX	20,668	--	--	85	2,033	--
Chile	10,304	--	892	--	--	--	131	--
France	18,304	--	--	13,873	--	XX	4,308	--
India	21,484	--	--	264	651	2	117	--
Liberia	21,235	--	1,868	942	--	1,297	6,881	--
Malaysia	879	--	--	--	--	--	--	--
Mauritania	8,601	--	--	1,291	--	1,937	1,094	--
Norway	2,742	--	--	[4] 5	25	1	[4] 1,455	--
Peru	9,120	--	1,079	--	--	305	--	--
Philippines	2,213	--	20	--	--	--	--	--
Sierra Leone	2,610	--	--	--	--	63	556	--
South Africa, Republic of [5]	5,545	--	--	--	--	--	116	--
Spain	2,345	--	--	60	--	426	754	--
Sweden	26,179	--	181	8,110	402	1,322	10,378	--
U.S.S.R	36,500	--	--	85	10,968	--	120	3,001
United States	3,090	1,292	XX	--	--	--	22	--
Venezuela	19,162	--	13,161	425	--	162	2,302	--
Other countries and origin unreported [6]	2,356	--	74	39	[7] 348	62	222	--
Total	317,219	1,383	40,767	28,144	12,592	9,369	40,313	3,001

See footnotes at end of table.

Table 53.—Major world trade in iron ores, concentrates, and agglomerates (excluding roasted pyrite) [1] in 1971—Continued

(Thousand metric tons)

Source country	Recorded imports of principal recipient country [2]							
	Italy	Netherlands	Poland	Romania	United Kingdom	Other Europe [3]	Japan	Total of listed imports
Algeria	154	--	512	--	--	--	--	1,059
Angola	--	--	--	--	415	384	3,473	6,194
Australia	1,519	74	--	--	637	369	46,287	53,586
Brazil	1,025	593	--	--	1,560	2,766	8,997	[9] 27,620
Canada	1,257	1,181	--	--	4,980	658	2,685	33,547
Chile	--	--	--	--	--	--	9,036	10,059
France	--	--	--	--	--	--	--	18,181
India	36	--	--	--	76	229	16,795	[10] 18,170
Liberia	2,781	1,863	--	--	960	461	2,854	19,907
Malaysia	--	--	--	--	--	--	894	894
Mauritania	950	--	--	--	1,602	763	845	8,482
Norway	([4])	([4])	235	--	[4] 811	324	([4])	2,856
Peru	54	--	--	--	--	--	7,415	8,853
Philippines	--	--	--	--	--	--	2,334	2,354
Sierra Leone	--	638	--	--	12	--	1,150	2,419
South Africa, Republic of [5]	--	--	--	--	18	--	6,125	6,259
Spain	63	28	--	--	535	25	--	1,891
Sweden	511	1,612	675	--	2,487	751	790	27,219
U.S.S.R	800	--	10,312	[11] 4,300	1,277	340	1,502	[12] 32,705
United States	--	--	--	--	--	9	1,955	3,278
Venezuela	1,385	--	--	--	1,752	--	--	19,187
Other countries and origin unreported [6]	585	--	696	[13] 2,639	344	34	1,811	6,854
Total	11,120	5,989	12,430	6,939	17,466	7,113	114,948	311,574

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 8.

[2] Source: Statistical Office of the United Nations. 1971 World Trade Annual. V. I, Walker and Co., New York, 1973, except for data on Czechoslavakia, 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.

[3] Source: Official trade returns of the countries listed, except for Angola and Mauritania (data from Annales des Mines, October 1973, pp. 89–122) and Australia and India (data from government publications of the respective countries other than official trade returns).

[4] Figures adjusted from those reported in official import statistics of Belgium-Luxembourg, West Germany, Italy, the Netherlands, the United Kingdom, and Japan to adjust for ores originating in Sweden but shipped through Narvik, Norway, and apparently credited in those sources to Norway.

[5] Includes exports from Swaziland.

[6] Recorded 1971 export total is a total of exports from the following countries (exports for each follow the country name in parentheses in thousand metric tons): Austria (1); Belgium-Luxembourg (75); Bolivia (4); Finland (27); Germany, West (9); Hong Kong (18); Korea, North (450-Japanese imports only); Korea, Republic of (South) (421); Libya (1); Morocco (457); the Netherlands (21); Poland (1); Portugal (26); Thailand (5); Tunisia (719); and Yugoslavia (121).

[7] Figure represents difference between total reported Czechoslovakian imports and detail of recorded receipts; origin unreported.

[8] Includes the following countries with recorded total imports as indicated in parentheses in thousand tons: Austria (1,842); Denmark (1); Finland (900); Greece (432); Norway (10); Portugal (340); Spain (3,248); Sweden (2); Switzerland (43); and Yugoslavia (195).

[9] Excludes 1,272,000 metric tons to Argentina (reported in Argentine import statistics).

[10] Excludes 1,380,000 metric tons to Romania and 380,000 metric tons to Poland (reported in Indian trade statistics).

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

[12] Excludes 2,759,000 metric tons to East Germany and 1,032,000 metric tons to Bulgaria (reported in U.S.S.R. trade statistics).

[13] Figure represents difference between total reported Romanian imports and the U.S.S.R. export to Romania; origin unreported.

Table 54.—Major world trade in steel ingots and semimanufactures in 1971, by area

(Thousand metric tons)

Exporting country and area	Destination [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	1,214.8	158.4	37.5	40.6	6.4	2.2
United States	698.8	XX	533.3	379.5	62.8	56.3	19.4
Total	698.8	1,214.8	691.7	417.0	103.4	62.7	21.6
Europe:							
European Economic Community:							
Belgium-Luxembourg	89.0	1,583.0	211.0	8,326.0	904.0	229.0	219.0
France	105.1	1,404.2	270.2	3,341.0	925.5	253.8	214.9
Germany, West	175.8	2,293.5	287.2	5,310.3	1,974.3	523.6	1,521.6
Italy	2.5	517.8	92.4	1,174.0	258.7	111.8	396.6
Netherlands	--	486.0	43.0	2,119.0	729.0	164.0	90.0
Subtotal	372.4	6,284.5	903.8	20,270.3	4,791.5	1,282.2	2,442.1
European Free Trade Association:							
Austria	6.0	10.5	10.8	774.0	281.1	37.5	242.8
Denmark	--	.2	.3	85.2	164.1	8.8	.1
Norway	--	7.2	.8	136.3	287.5	47.3	1.0
Portugal	--	.1	.2	3.6	1.1	4.4	--
Sweden	16.0	81.0	21.0	450.0	568.0	116.0	88.0
Switzerland	1.1	8.8	.6	53.0	32.2	5.9	1.4
United Kingdom	150.2	1,269.5	253.4	475.1	590.6	673.9	157.8
Subtotal	173.3	1,377.3	287.1	1,977.2	1,924.6	893.8	491.1
Other non-Communist Europe:							
Finland	--	33.1	19.9	141.6	179.8	2.8	4.1
Greece	--	34.6	--	3.0	1.4	.1	69.4
Spain	2.6	185.1	67.8	309.9	60.2	36.5	56.5
Subtotal	2.6	252.8	87.7	454.5	241.4	39.4	130.0
European Communist Countries:							
Bulgaria	--	--	--	220.0	58.6	30.8	388.1
Czechoslovakia	113.6	43.5	4.5	694.4	311.6	90.7	1,048.3
Germany, East [6]	.5	--	--	18.6	3.5	15.6	44.2
Hungary	--	--	6.1	153.4	136.5	199.0	260.1
Poland	7.8	174.3	125.7	129.6	163.6	30.4	666.2
Romania [6]	--	--	--	305.8	24.2	26.0	105.2
U.S.S.R	--	--	181.3	104.5	59.3	110.4	5,882.6
Yugoslavia	.6	1.6	--	58.9	12.5	4.6	219.5
Subtotal	122.5	219.4	317.6	1,685.2	769.8	507.5	8,614.2
Total	670.8	8,134.0	1,596.2	24,387.2	7,727.3	2,722.9	11,677.4
Africa: South Africa, Republic of	.1	17.9	2.4	18.2	9.1	6.1	--
South Asia and Far East:							
India [7]	1.7	8.5	9.6	.6	.6	1.0	71.5
Japan	888.0	5,787.0	2,743.0	1,653.0	672.0	490.0	797.0
Subtotal	889.7	5,795.5	2,752.6	1,653.6	672.6	491.0	868.5
Oceania: Australia	4.5	51.8	17.8	4.5	3.4	2.7	.4
Grand total	2,263.9	15,214.0	5,060.7	26,480.5	8,518.8	3,285.4	12,567.9

See footnotes at end of table.

Table 54.—Major world trade in steel ingots and semimanufactures in 1971, by area—Continued

(Thousand metric tons)

Exporting country and area	Destination [1]							
			South Asia and Far East					
	Africa	Near East [4]	Japan	Other non-Communist	Communist [5]	Oceania	Unallocated	Total
North America:								
Canada	3.6	13.3	0.4	39.0	--	12.2	--	1,528.4
United States	71.4	143.8	12.5	584.9	11.5	15.0	0.8	2,590.0
Total	75.0	157.1	12.9	623.9	11.5	27.2	.8	4,118.4
Europe:								
European Economic Community:								
Belgium-Luxembourg	293.0	167.0	--	104.0	12.0	10.0	--	12,147.0
France	688.1	293.4	.1	118.6	37.7	22.2	13.0	7,687.8
Germany, West	320.1	320.7	1.9	255.2	196.8	21.5	--	13,202.5
Italy	247.6	218.6	--	39.2	62.4	3.3	6.3	3,131.2
Netherlands	44.0	18.0	--	23.0	1.0	3.0	6.0	3,726.0
Subtotal	1,592.8	1,017.7	2.0	540.0	309.9	60.0	25.3	39,894.5
European Free Trade Association:								
Austria	4.1	36.8	--	2.9	2.6	4.0	2.2	1,415.3
Denmark	.3	.1	--	.3	--	--	--	259.4
Norway	7.5	2.0	--	13.8	--	--	--	503.4
Portugal	18.7	1.1	--	3.9	--	--	.1	33.2
Sweden	21.0	7.0	3.0	18.0	42.0	7.0	--	1,438.0
Switzerland	2.2	1.2	--	.4	--	--	.2	107.0
United Kingdom	422.4	217.2	.5	595.0	44.6	123.8	2.0	4,976.0
Subtotal	476.2	265.4	3.5	634.3	89.2	134.8	4.5	8.732.3
Other non-Communist Europe:								
Finland	--	18.0	--	.5	6.0	--	--	405.8
Greece	4.3	12.8	--	--	--	--	--	125.6
Spain	81.1	110.7	--	.5	--	6.3	.8	918.0
Subtotal	85.4	141.5	--	1.0	6.0	6.3	.8	1,449.4
European Communist Countries:								
Bulgaria	1.4	115.2	3.1	4.6	4.3	--	--	826.1
Czechoslovakia	21.8	332.3	--	32.5	52.7	--	--	2,745.9
Germany, East [6]	--	--	--	--	--	--	--	82.4
Hungary	10.2	120.9	--	52.7	10.7	--	--	949.6
Poland	25.9	62.5	--	60.5	38.7	--	.4	1,485.6
Romania [6]	--	55.5	--	--	--	--	--	516.7
U.S.S.R	58.4	458.4	--	132.2	87.4	--	369.8	7,444.3
Yugoslavia	2.8	1.1	--	1.8	3.2	--	--	306.6
Subtotal	120.5	1,145.9	3.1	284.3	197.0	--	370.2	14,357.2
Total	2,274.9	2,570.5	8.6	1,459.6	602.1	201.1	400.8	64,433.4
Africa: South Africa, Republic of	--	.2	.5	.7	--	1.5	224.2	280.9
South Asia and Far East:								
India [7]	29.7	36.0	11.7	39.1	--	3.9	1.7	215.6
Japan	1,153.0	1,258.0	XX	4,336.0	2,483.0	934.0	--	23,194.0
Subtotal	1,182.7	1,294.0	11.7	4,375.1	2,483.0	937.9	1.7	23,409.6
Oceania: Australia	11.3	3.2	13.8	180.8	16.4	222.2	--	532.8
Grand total	3,543.9	4,025.0	47.5	6,640.1	3,113.0	1,389.9	627.5	92,775.1

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 the United States and Canada.

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

[4] Bahrain, Iran, Iraq, Jordan, Kuwait, Lebanon, Muscat and Oman, Qatar, Saudi Arabia, Southern Yemen, Syria, United Arab Emirates, Turkey, and Yemen.

[5] Consists of the People's Republic of China, North Korea, and North Vietnam; Mongolia is included under other non-Communist Asia and Far East owing to its inseparability from this group in source.

[6] Partial figure; derived from import data of partner countries. Source: Statistical Office of the United Nations. 1971 World Trade Annual. V. III, Walker and Co., New York, 1973, 540 pp.

[7] Data are for calendar year 1971, and are derived from country source data.

Source: Except where otherwise noted: United Nations Economic Commission for Europe. Statistics of World Trade in Steel, 1971, 61 pp.

Table 55.—Major world trade in lead ores and concentrates [1]

(Thousand metric tons of contained metal unless otherwise specified)

Destination	Exporting region: North America	Latin America [2]	Western Europe [3]	Eastern Europe [4]	Africa	Asia	Oceania	Origin not reported by continent	Total
1971									
United States	20.3	31.5	--	--	--	--	8.1	--	59.9
Western Europe:									
Belgium-Luxembourg [5]	34.5	24.6	13.5	--	--	--	--	13.2	85.8
France	3.0	6.9	41.7	--	38.4	0.5	14.3	--	104.8
Germany, West	42.1	36.0	39.5	0.1	8.8	.3	--	--	126.8
United Kingdom	2.3	6.2	6.2	--	9.8	--	18.4	--	42.9
Other [6]	6.2	--	15.1	--	--	--	--	.2	21.5
Total	88.1	73.7	116.0	.1	57.0	.8	32.7	13.4	381.8
Japan	93.8	14.2	--	--	.7	17.4	12.4	1.3	139.8
Grand total	202.2	119.4	116.0	.1	57.7	18.2	53.2	14.7	581.5
1972									
United States	27.4	45.1	--	--	.4	--	18.8	--	91.7
Western Europe:									
Belgium-Luxembourg [5]	26.2	15.5	10.4	--	10.7	--	--	18.2	81.0
France	7.1	4.1	43.6	--	46.7	--	7.7	2.7	111.9
Germany, West	17.7	28.1	57.8	--	6.8	.3	3.3	--	114.0
United Kingdom	5.0	12.4	5.3	--	--	--	--	--	22.7
Other [7]	--	--	--	--	--	--	--	--	--
Total	56.0	60.1	117.1	--	64.2	.3	11.0	20.9	329.6
Japan	88.9	16.3	--	--	--	13.0	4.3	1.2	123.7
Grand total	172.3	121.5	117.1	--	64.6	13.3	34.1	22.1	545.0

[1] Imports of countries other than those listed believed smaller.
[2] Includes Mexico.
[3] Includes Yugoslavia.
[4] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the U.S.S.R.
[5] Gross weight of ore January through October.
[6] Includes Italy gross weight of ore, January through October and Austria for January through June.
[7] None reported in 1972.

Source: Monthly Bulletin of Statistics of the International Lead and Zinc Study Group. Lead and Zinc Statistics, April 1972, v. 12, No. 4, p. 24; April 1973, v. 13, No. 4, p. 24.

Table 56.—Major world trade in lead bullion and refined lead[1]

(Thousand metric tons)

Destination	Exporting region								
	North America	Latin America[2]	Western Europe[3]	Eastern Europe[4]	Africa	Asia	Oceania	Origin not reported by continent	Total[5]
1971									
United States	51.5	59.9	11.9	--	12.3	--	41.9	--	177.5
Western Europe:									
Belgium-Luxembourg[6]	--	--	17.0	--	--	--	--	2.3	19.3
France	.1	--	24.9	1.1	15.5	--	--	--	41.6
Germany, West	2.8	1.9	92.5	.4	1.6	4.6	19.6	--	123.4
Italy[7]	--	26.4	40.6	--	22.3	7.8	--	15.5	112.6
Netherlands	--	6.4	25.2	2.2	--	--	23.2	--	57.0
Switzerland	2.0	3.9	14.9	.4	.3	--	1.2	.3	23.0
United Kingdom	42.6	.2	--	--	9.6	--	177.8	--	230.2
Other[8]	1.2	5.1	27.7	7.0	5.1	--	--	--	46.1
Total	48.7	43.9	242.8	11.1	54.4	12.4	221.8	18.1	653.2
Japan	.5	.6	--	--	.9	1.5	--	.1	3.6
Grand total	100.7	104.4	254.7	11.1	67.6	13.9	263.7	18.2	834.3
1972									
United States	75.8	76.9	26.4	--	8.0	.2	35.0	1.0	223.2
Western Europe:									
Belgium-Luxembourg[6]	.5	--	13.9	--	--	--	--	2.2	16.6
France	--	--	28.5	2.0	6.7	--	--	.9	38.1
Germany, West	4.9	2.1	73.8	.6	1.5	10.4	23.9	--	117.2
Italy[9]	--	23.7	39.5	.5	14.6	13.3	--	22.4	114.0
Netherlands	--	7.1	25.2	2.8	--	1.0	9.3	--	45.4
Switzerland	2.0	3.0	15.7	.3	--	--	.9	.5	22.4
United Kingdom	46.4	--	--	--	5.9	--	153.0	.4	205.7
Other[10]	.6	3.4	33.6	9.8	3.2	--	--	.2	50.7
Total	54.4	39.3	230.2	16.0	31.9	24.7	187.1	26.6	610.1
Japan	.3	1.9	--	--	.8	1.2	--	.2	4.4
Grand total	130.5	118.1	256.6	16.0	40.7	26.1	222.1	27.8	837.7

[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 total 70,000 tons or more per year.

[2] Includes Mexico.

[3] Includes Yugoslavia.

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

[5] Reported totals.

[6] January through November.

[7] January through June.

[8] Includes Austria, January through June; and Norway, Denmark, Finland, Ireland, and Sweden, January through December.

[9] January through September.

[10] Includes Austria, Denmark, Finland, Norway, and Sweden, January through December.

Source: Monthly Bulletin of International Lead and Zinc Study Group. Lead and Zinc Statistics, May 1972, v. 12, No. 5, pp. 24–25; May 1973, v. 13, No. 5, pp. 24–25.

Table 57.—Major world trade in zinc ores and concentrates[1]

(Thousand metric tons of contained metal unless otherwise specified)

Destination	Exporting region								
	North America	Latin America[2]	Western Europe[3]	Eastern Europe[4]	Africa	Asia	Oceania	Origin not reported by continent	Total
1971									
United States	189.8	114.7	3.6	--	0.1	--	2.6	--	310.8
Western Europe:									
Belgium-Luxembourg[5]	265.8	--	39.7	--	39.6	--	--	85.9	431.0
France	79.6	48.0	71.6	--	20.4	3.7	--	--	223.3
Germany, West	95.4	12.5	46.3	4.7	1.0	6.2	7.4	--	173.5
United Kingdom	23.7	9.8	12.2	--	--	--	87.0	3.3	136.0
Other[6]	36.1	5.9	41.3	--	.6	1.0	10.3	--	95.2
Total	500.6	76.2	211.1	4.7	61.6	10.9	104.7	89.2	1,059.0
Japan	155.6	222.9	--	--	1.2	34.7	62.9	--	477.3
Grand total	846.0	413.8	214.7	4.7	62.9	45.6	170.2	89.2	1,847.1
1972									
United States	123.0	92.2	6.4	--	4.3	--	5.3	--	231.2
Western Europe:									
Belgium-Luxembourg[7]	307.5	15.5	71.2	--	32.5	--	--	40.6	467.3
France[8]	77.9	47.4	30.7	--	24.8	8.8	2.2	--	191.8
Germany, West	117.3	47.3	64.3	2.8	--	6.3	6.4	--	244.4
United Kingdom	8.2	6.1	15.3	--	--	--	21.3	8.4	59.3
Other[9]	31.7	13.8	89.4	--	--	1.2	28.1	--	164.2
Total	542.6	130.1	270.9	2.8	57.3	16.3	58.0	49.0	1,127.0
Japan	139.4	261.1	--	--	--	55.7	60.0	1.6	517.8
Grand total	805.0	483.4	277.3	2.8	61.6	72.0	123.3	50.6	1,876.0

[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 the U.S.S.R.
[5] January through October.
[6] Includes Austria, January through June; Norway and the Netherlands, January through December.
[7] Gross weight of ore, January through October.
[8] January through September.
[9] Includes the Netherlands and Norway, January through December. Norway data is gross weight of ore.

Source: Monthly Bulletin of the International Lead and Zinc Study Group. Lead and Zinc Statistics, April 1972, v. 12, No. 4, p. 25; and April 1973, v. 13, No. 4, p. 25.

Table 58.—Major world trade in refined zinc

(Thousand metric tons)

Destination	Exporting region								
	North America	Latin America [1]	Western Europe [2]	Eastern Europe [3]	Africa	Asia	Oceania	Origin not reported by continent	Total [4]
1971									
United States	136.9	30.9	62.2	3.5	12.7	7.9	35.0	0.8	289.9
Western Europe:									
Belgium-Luxembourg [5]	3.9	--	4.1	--	8.5	5.4	3.3	6.4	31.5
France	1.2	--	14.5	5.3	1.2	7.1	.2	--	29.5
Germany, West	8.9	.8	127.8	10.6	12.1	1.9	--	--	162.1
Italy [5]	2.8	.2	23.6	5.7	1.9	--	--	3.1	37.3
Netherlands	--	.5	8.4	4.3	--	6.3	--	--	19.5
Sweden	1.5	--	26.6	6.1	--	--	--	--	34.2
Switzerland	.1	.1	20.2	.9	1.6	3.2	--	--	25.9
United Kingdom	73.7	1.9	22.3	39.5	1.2	--	31.8	.1	171.7
Other [6]	.2	--	11.4	2.5	1.1	--	--	--	15.2
Total	92.3	3.5	258.9	74.9	27.6	23.9	35.3	9.6	526.9
Hong Kong	2.3	--	.5	--	--	2.0	2.7	1.0	8.5
Japan	2.4	.5	--	--	--	8.6	1.8	--	13.3
Grand total	233.9	34.9	321.6	78.4	40.3	42.4	74.8	11.4	838.6
1972									
United States	246.0	35.4	97.7	8.8	21.2	27.3	35.9	1.7	474.1
Western Europe:									
Belgium-Luxembourg [5]	1.8	--	1.3	5.2	10.7	6.7	1.9	5.6	33.2
France	.8	--	22.7	9.1	1.0	16.7	--	.5	50.8
Germany, West	5.6	--	113.5	6.6	6.3	1.1	--	--	133.1
Italy [7]	3.1	--	18.1	2.5	6.6	--	1.0	--	33.7
Netherlands	--	--	10.4	3.2	2.0	3.0	--	.3	18.9
Sweden	1.0	--	32.9	4.9	--	--	--	--	38.8
Switzerland	--	--	26.9	1.4	1.8	2.7	--	--	32.8
United Kingdom	67.5	.6	67.1	25.7	10.6	.5	41.1	11.5	224.7
Other [8]	.2	--	14.4	3.5	1.6	--	--	--	19.7
Total	80.0	.6	307.3	62.1	40.6	30.7	44.0	17.9	585.7
Hong Kong	--	--	--	--	--	--	--	--	--
Japan	--	.2	--	--	--	7.2	--	--	7.4
Grand total	326.0	36.2	405.0	70.9	61.8	65.2	79.9	19.6	1,067.2

[1] Includes Mexico.
[2] Includes Yugoslavia.
[3] Includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the U.S.S.R.
[4] Reported totals; detail may not add horizontally owing to rounding.
[5] January through November.
[6] Includes Austria, January through June; and Denmark, Finland, and Ireland, January through December.
[7] January through September.
[8] Includes Austria, Denmark, and Finland, January through December.

Source: Monthly Bulletin of the International Lead and Zinc Study Group, Lead and Zinc Statistics. May 1972, v. 12, No. 5, pp. 26–27, May 1973, v. 13, No. 5, pp. 26–27.

Table 59.—World movement of solid fuels in 1971 [1]

(Thousand metric tons, standard coal equivalent)

Source area	Destination					
	North America [2]	Caribbean America [3]	Other America [4]	Western Europe [5]	Africa	Near East
North America [2]	16,965	450	2,570	15,705	45	--
Western Europe [5]	150	25	65	31,620	355	--
Africa	15	--	--	925	905	--
Far East	--	150	20	--	--	--
Oceania	--	5	45	3,165	--	--
Other countries [6]	--	125	145	25.920	660	--
Total [7]	17,130	715	2,850	77,370	1,955	--

	Destination				
	Far East	Oceania	Other countries [6]	Destination unspecified [8]	World [7]
North America [2]	24,725	5	115	10	60,590
Western Europe [5]	45	--	660	40	32,950
Africa	220	15	--	430	2,505
Far East	740	--	--	5	875
Oceania	16,670	345	30	5	20,275
Other countries [6]	4,870	--	39,910	190	71,820
Total [7]	47,265	365	40,720	690	189,070

[1] Data based on the general trade system; lignite briquets are reduced to standard coal equivalent (SCE) 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, including Yugoslavia.
[6] Chiefly the Communist nations of Europe and Asia, but apparently including some other countries not identified separately.
[7] 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.
[8] As reported in source.

Source: Statistical Office of the United Nations. World Energy Supplies 1968–71. Statistical Papers, Series J, No. 16, New York, 1973, pp. 41-47.

Table 60.—World movement of crude petroleum in 1970–71 [1]

(Thousand metric tons)

Source area [2]	Destination: North America	Caribbean America	Other America	Western Europe	Africa	Near East
1970						
North America	32,950	570	--	30	--	--
Caribbean America	35,300	71,440	5,700	22,080	180	--
Other America	--	130	520	90	--	--
Western Europe	160	--	--	1,440	30	--
Africa	8,390	15,730	5,280	241,220	3,060	530
Near East	16,320	4,160	10,560	307,790	15,830	22,820
Far East	3,580	950	--	--	--	--
Other countries	--	4,500	--	25,820	2,070	--
Total [3]	96,340	97,480	22,060	598,470	21,170	23,350
1971						
North America	36,590	20	--	20	--	--
Caribbean America	38,300	61,890	6,550	20,600	30	--
Other America	140	820	1,000	110	--	--
Western Europe	--	--	--	2,060	--	--
Africa	13,120	26,050	5,650	203,160	3,750	720
Near East	26,210	10,690	14,350	367,250	20,570	22,050
Far East	5,600	590	--	100	--	--
Other countries	--	4,600	--	26,950	2,270	--
Total [3]	120,360	104,660	27,550	620,320	26,620	22,770

Source area [2]	Destination: Far East	Oceania	Other countries	Destination unspecified	World [3]
1970					
North America	30	--	--	--	33,220
Caribbean America	600	--	--	--	135,300
Other America	--	--	--	--	740
Western Europe	--	--	--	--	1,630
Africa	2,430	--	4,370	--	281,010
Near East	193,170	13,670	7,270	13,750	604,540
Far East	33,700	3,350	140	--	41,720
Other countries	500	--	34,440	--	67,330
Total [3]	230,430	17,020	46,220	13,750	1,165,310
1971					
North America	20	--	--	--	36,650
Caribbean America	460	--	--	40	127,870
Other America	--	--	--	--	2,070
Western Europe	--	--	--	10	2,070
Africa	3,120	80	4,750	10	260,410
Near East	217,230	12,110	11,400	15,620	717,480
Far East	38,240	1,270	150	--	45,950
Other countries	1,500	--	38,870	860	75,050
Total [3]	260,800	13,460	55,170	16,510	1,268,220

[1] Data are based on general trade system.
[2] For details on countries included in each area, see footnotes to table 59.
[3] Reported totals; details may not add to totals shown because of (1) inclusions in totals of quantities shipped to or received from areas not listed separately or identified in original sources and (2) rounding.

Source: Statistical Office of the United Nations. World Energy Supplies 1968–71. Statistical Papers J, No. 16, New York, 1973, pp. 61–69.

Table 61.—Refined petroleum fuel trade, by Continental area[1]

(Million metric tons)

Continental area[2]	Exports		Imports		Bunkers	
	1970	1971	1970	1971	1970	1971
North America	7.93	8.01	112.69	116.10	17.81	17.67
Caribbean America	132.32	133.66	14.02	15.06	15.83	15.54
Other America	1.10	.69	4.57	4.26	1.60	1.75
Western Europe	101.50	97.25	120.91	123.13	46.11	48.41
Eastern Europe	37.37	37.70	7.62	6.65	NA	NA
Africa	4.35	4.61	13.91	13.15	8.21	8.09
Near East	65.50	57.52	2.54	2.25	20.11	23.16
Far East	20.50	23.64	50.43	48.54	25.09	27.37
Oceania	1.63	2.26	4.66	5.49	3.63	3.88
Not specified[3]	.14	.07	1.41	1.39	.78	.73
Total	372.34	365.41	332.76	336.02	139.17	146.60

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 59 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.

Sources: Statistical Office of the United Nations. World Energy Supplies 1968–71. Statistical Papers. Series J, No. 16, New York, 1973, pp. 70–81.