

Minerals in the World Economy

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On the basis of world production data alone, 1985 appears to have been a year in which the world's mineral industry took another step upward in its recovery from the very poor years of 1981, 1982, and early 1983. Despite a drop in the output of crude oil, which was the single most significant crude mineral product from the viewpoint of value, the estimated value of world crude mineral production advanced by 3.4% to about \$1,054 billion constant 1983 dollars, with output increases logged for nearly two-thirds of the commodities and forms of commodities for which the U.S. Bureau of Mines calculates a total world output. However, the economic well-being of any industry or group of industries cannot be measured solely in terms of the volume and/or value of its production, and examination of statistics reflecting other aspects of mineral industry performance shows that 1985 was a less than ideal year in many respects. In the case of consumption of mineral commodities, although there were gains registered in diverse sectors such as iron and steel, aluminum, fertilizer materials, solid fuels, and gaseous fuels, there were also proportionally small but notable declines in use among the older major nonferrous metals (copper, lead, tin, and zinc) and in the all-important liquid fuels.

In the case of international trade in mineral commodities, although comprehensive data for 1985 were not yet available, there were indications that the value may well have fallen below the estimated 1984 level of \$632 billion, although the volume may have increased slightly. This, if true, would be chiefly the result of declining prices of mineral commodities, and indeed, price declines were noted for a number of significant materials in terms of current

dollars, and even more would register declines if calculated on the basis of constant dollars, adjusting for inflation.

In the area of investment in mineral industry activities, the relatively incomplete data available suggest that in market economy countries, 1985 saw a reduced level of investment, with higher rates of return in other industrial areas capturing available capital. Certainly, although detailed figures are lacking, investment in the petroleum industry was below that of 1984. In contrast, the centrally planned economy countries apparently continued to invest at a substantial level, but here as in past years, completions of facilities were often behind target dates and performance of newly completed facilities often was below anticipated levels. In the area of mineral commodity transport, there was a reduction of about 9 million tons in goods moving through the Suez Canal (comparable data for the Panama Canal were not available yet), this despite reductions in price indexes for marine shipment of mineral commodities.

Among international political events and situations that had measurable impact on world mineral industry activities, the Iran-Iraq war undoubtedly had the greatest effect, both through the direct effect on mineral production and processing in those two countries and through the threat of that conflict to all countries bordering the Persian Gulf. The reduction in availability of crude oil hardly presented a problem to the world as a whole, nor particularly to other major petroleum producing countries, for it left them with a somewhat larger share of total output than would be the case if the warring countries could devote more time, money, and effort to improving their com-

petitive position.

Of far less significance but having some impact on individual countries were the continuing problems of guerrilla warfare in several Central American countries and in Afghanistan. It was notable, however, in

the case of Afghanistan, that with Soviet technical assistance, a modest copper operation came on-stream, this despite the hazardous conditions prevailing in areas outside of main Soviet-occupied towns.

PRODUCTION

The estimated value of world crude mineral production in 1985 was \$1,054 billion in terms of constant 1983 dollars, 3.4% above the revised 1984 level, but still short of the historic high of 1980, as shown in the follow-

ing tabulation, which is based heavily upon the most recent reassessment of world mineral production value by François Callot in the authoritative French language mineral industry journal, *Annales des Mines*.³

Year	Value of 53 ¹ major crude mineral commodities ² (billion current dollars)	Billion constant 1983 dollars	
		Value of 53 ¹ major crude mineral commodities ²	Value of all crude mineral commodities ³
1950	25.9	103.5	117.9
1953	37.0	135.1	155.3
1958	50.0	173.5	208.5
1963	59.0	192.0	235.3
1968	77.9	222.3	269.8
1973	159.2	357.3	430.0
1978	477.0	728.5	824.1
1979	656.5	901.2	1,006.5
1980	951.2	1,150.9	1,269.2
1981	1,024.8	1,126.0	1,226.3
1982	892.6	922.1	991.9
1983	930.4	930.4	988.7
1984	995.0	958.9	1,019.0
1985	1,029.5	991.8	1,054.0

¹The list of commodities included appears in table 3 of this chapter; one commodity covered in 1950-68 (beryl) is excluded from the 1973-85 figures, but the overall impact of this omission is regarded as insignificant.

²Data for 1950, 1953, 1958, 1963, 1968, 1973, 1978, and 1983 are as reported in *Annales des Mines*, July-Aug.-Sept. 1985, p. 9. Data for 1979-82 have been derived from figures appearing in *Annales des Mines*, Nov.-Dec. 1981, pp. 198-199; Oct.-Nov. 1983, pp. 210-211; and Nov.-Dec. 1984, pp. 206-207, using appropriate price deflators. Constant dollar data for 1984 and 1985 are extrapolated from the 1983 *Annales des Mines* figures on the basis of the United Nations index of extractive industry production in the United Nations Monthly Bulletin of Statistics, May 1986, p. xiv. Current dollar data for 1984 and 1985 are computed from the constant dollar extrapolated figures using the reciprocals of the most recent available implicit price deflators.

³Data extrapolated from values for 53 commodities to compensate for other (additional) mineral commodities. For details on the basis for this extrapolation, see accompanying text under "Value of World Mineral Production."

The foregoing tabulation includes for the first time a column showing the approximate value of production of the 53 commodities surveyed by Callot in terms of current dollars, as well as the now-traditional columns giving the constant dollar value of these 53 commodities and the rough approximation of the value of total crude mineral production.

The foregoing presentation of value of crude mineral output, however, falls far short of adequately depicting the role of the entire minerals industry in the world economy, in that the data included represent only the value of mineral materials as they are extracted from the earth, rather than the considerably enhanced value that results from beneficiation, smelting, refining, and other downstream processing to which

those raw materials are subjected while they remain within facilities that are commonly accepted to be mineral industry plants. Comprehensive data on the value added by such processing are not available on a worldwide basis, but a total on the order of \$2,500 billion (constant 1983 dollars) for 1985 would be a conservative estimate of the value of the products of the world's mineral industry plants that were derived wholly from primary or newly mined raw materials only. To this, an additional unestimated increment should be added for processed minerals and metals recovered from secondary raw materials—scrap and other reclaimed materials.

It should be stressed that crude and processed mineral commodities constitute not only the overwhelmingly dominant

share of the total raw materials supply for all manufacturing operations but also, in the form of fertilizers and other soil treatment materials, are essential raw materials to ensure continued high production by the agricultural-forestry sector. Moreover, the mineral industry, through its output of the various fuel materials, provides all significant supplies of energy for the transportation and transformation of crude nonfuel as

well as nonmineral materials to finished industrial and consumer goods.

PRODUCTION INDEX PATTERNS

The following tabulation summarizes the development pattern in world extractive mineral industry output as reflected by United Nations industrial production indexes:

Year	Index numbers (1980=100)			
	Coal	Crude petroleum and natural gas	Metals	Extractive industry total
Annual averages:				
1978 ^a	93.6	103.8	97.4	101.3
1979 ^a	96.8	108.5	99.7	105.6
1981 ^a	100.3	89.4	99.6	92.5
1982 ^a	102.1	81.0	93.7	86.0
1983 ^a	101.5	79.3	94.1	84.9
1984 ^a	100.1	82.0	98.1	87.5
1985 ^a	102.7	86.9	98.4	90.2
Quarterly results:				
1984:				
1st quarter	105.0	84.4	99.0	89.7
2d quarter	98.0	78.4	100.3	85.0
3d quarter	100.0	79.9	96.0	85.8
4th quarter ^a	97.5	85.1	97.2	89.4
1985:				
1st quarter	105.4	87.9	99.2	92.4
2d quarter	100.0	81.5	100.7	87.7
3d quarter	102.2	86.8	96.4	91.3
4th quarter ^a	103.0	91.5	97.4	93.6

^aEstimated. ^bRevised.

^cCalculated from reported data for the 1st through the 3d quarters and estimates for the 4th quarter.

Source: United Nations. Monthly Bulletin of Statistics. V. 40, No. 5, May 1986, p. xiv. Estimates are by the senior author.

It is evident from the foregoing tabulation that although there were marked differences in the performance of the three major component sectors of the extractive industry through 1984 and 1985, the activities of each sector in each quarter of 1985 were at a higher level than in the corresponding quarter of 1984. As indicated in the 1984 edition of this chapter, the quarterly data and annual averages for the coal sector subsequent to the first quarter of 1984 seem unduly low compared with quantitative data on world coal industry activities compiled by the U.S. Bureau of Mines and presented subsequently in this chapter. Bureau figures indicate an increase of 5.3% in total world coal output between 1983 and 1984, and a further 3.8% increase between 1984 and 1985; in contrast, the United Nations indexes indicate a 1.4% decline in the coal production index between 1983 and 1984, and a 2.6% increase in that index between 1984 and 1985, suggesting either incomplete

and/or erroneous reporting to the United Nations or a quite substantial decline in the average unit value of coal produced. It should be noted that the United Nations index numbers for coal presented in this chapter for 1983 and 1984 have been revised upward by that organization from those presented in the 1984 edition of this chapter, but even these upward revisions by the United Nations still seem too low.

Comparison of the foregoing tabulation of extractive industry indexes with the following tabulation of indexes from the same source for certain processing sectors of the mineral industry demonstrates that the processing sectors generally continued to demonstrate a more effective recovery from the slump of 1980-82 than did the extractive sectors, although the rates of growth in nonmetallic mineral products and in base metals between 1984 and 1985 were substantially reduced from those between 1983 and 1984:

Year	Index numbers (1980 = 100)		
	Non-metallic mineral products	Chemicals, petroleum, coal, rubber products	Base metals
Annual averages:			
1978 ^a -----	95.8	95.6	99.8
1979-----	99.6	100.6	104.5
1981 ^a -----	97.9	100.8	99.2
1982 ^a -----	94.5	99.6	88.8
1983 ^a -----	96.9	104.9	91.3
1984 ^a -----	100.2	111.5	98.2
1985 ^a ¹ -----	101.9	116.4	98.4
Quarterly results:			
1984 ^a :			
1st quarter --	96.2	112.0	100.5
2d quarter --	103.4	112.9	101.3
3d quarter --	100.6	109.7	94.0
4th quarter --	100.5	111.4	97.2
1985:			
1st quarter --	94.8	116.6	100.3
2d quarter --	105.5	117.6	101.8
3d quarter --	103.2	115.6	95.2
4th quarter ^e --	104.0	116.0	96.2

^aEstimated. ¹Revised.

¹Calculated from reported data for 1st through 3d quarters and estimates for 4th quarter.

Source: United Nations. Monthly Bulletin of Statistics. V. 40, No. 5, May 1986, p. xv. Estimates are by the senior author.

The slump in the index for base metals in the third quarter of 1984, which was noted in the 1984 edition of this chapter, was repeated in 1985, and although the decline in the latter year between the second and third quarter was not as substantial as that recorded in 1984, the recovery in the fourth quarter of 1985 was not as substantial as that recorded for the fourth quarter of 1984, thus the average performance in the last half of 1985 was only very marginally above that of the last half of 1984.

Both of the foregoing tabulations of indexes reflect the aggregation of results from many world areas that individually showed quite variable results, both from area to area and across the years from quarter to quarter. For regional details too extensive to include here, the reader is referred to the source publication for these tabulations.

QUANTITATIVE COMMODITY OUTPUT

Of the 97 distinct mineral commodities and/or subdivisions of mineral commodities for which total world production, as measured by the U.S. Bureau of Mines, is presented in table 1 for 1981-85,⁴ 62 registered increases in 1985 relative to the 1984 level of production. Of the remainder, 33 registered declines and the output levels of 2 were essentially unchanged from those of 1984. These results were somewhat less satisfactory than those of 1984, when gains over 1983 output levels were achieved by 83 commodities, with 13 showing declines and

1 registering no change; but it was a better record than that of 1983, when production of only 51 commodities exceeded 1982 levels, with 46 showing lower levels.

Of the 62 commodities for which output increases were logged between 1984 and 1985, 9 registered declines between 1983 and 1984, 23 showed increases for the second consecutive year, 18 recorded gains for the third year in a row, 5 registered higher output levels for the fourth consecutive year, and 7 showed continuous growth in output levels for 5 years or more. The latter, with the number of years of continually upward output, were fuller's earth, 5; gold, 6; secondary smelter copper, 7; cement, 10; feldspar, 10, natural gas liquids, 11; and lignitic coal, 13. Of the 33 commodities reporting declines in output between 1984 and 1985, 30 had registered increases between 1983 and 1984, 2 recorded declines for 2 consecutive years, and 1 (uranium oxide) registered a decline for 5 years in a row. Of the two commodities whose 1985 output was equal to that of 1984, one had recorded a downturn in 1984 following an increase in 1983, and output of the other was also unchanged between 1983 and 1984, following a drop between 1982 and 1983.

Of the 50 listed metallic commodities, 35 were produced in greater quantities in 1985 than in 1984, output of 15 declined, and that of 1 was unaltered. From the broadest economist viewpoint, upturns in iron ore, pig iron, crude steel, and virtually all of the ferroalloying metals (chromite, manganese, molybdenum, nickel, titanium, and tungsten), as well as in gold, were probably the most notable, while the declines in the aluminum materials (bauxite, alumina, and unalloyed ingot metal) and uranium oxide were the more notable shortfalls. The apparent decline in vanadium output was the result of the exclusion of U.S. data for 1985 rather than from an actual drop in output. Considering the metals production trends from the viewpoint of mine products as opposed to processed forms, 21 of 27 mine products registered gains, while only 13 of 23 processed metals did so.

Of the 36 commodities included under the category "Industrial Minerals," 20 recorded production increases between 1984 and 1985, while 15 registered declines and 1 was essentially unchanged. Within this group of commodities, gains registered by construction materials such as cement and gypsum, as well as those recorded by diamond and by all three listed classes of sulfur and by

nitrogen in ammonia among chemical materials, were offset, to some extent, by the lower levels of production recorded for lime, phosphate rock, and potash among the agricultural chemicals, and for salt.

Of the 11 mineral fuel commodities surveyed (excluding uranium, which is included under "Metals"), 8 showed increases and 3 recorded declines. The reductions in output of crude and refined petroleum, in response to the continued world market glut, could have been expected, as could continued growth in the output levels of all three forms of coal listed, these as a result of continuing efforts on the part of many countries to meet a greater share of their energy requirements from sources other than higher cost imported petroleum. Increases in production of natural gas and natural gas liquids reflected increased utilization of such materials associated with crude petroleum as well as shifts, in the

case of some countries, away from oil imports. The upturn in metallurgical coke production was a corollary to the growth in steel output.

The overall performance of the nonfuel mineral industry can only be summarized in terms of value of production, and for these commodities, exactitudes on a world-wide basis on a commodity-by-commodity basis are not available for any year subsequent to 1983 (see "Value of World Mineral Production"). Among fuel commodities, however, the overall pattern of output level changes and their interrelationships can be demonstrated by United Nations data, in which production results for all fuels are adjusted to a common energy equivalent basis. The following tabulation summarizes world energy commodity output for 1980-84 as reported by the United Nations, with U.S. Bureau of Mines estimates for 1985:

Year	Million metric tons of standard coal equivalent				
	Coal	Crude petroleum and natural gas liquids	Natural gas	Hydro and nuclear electricity	Total
1980	2,626	4,497	1,840	301	19,265
1981 [*]	2,635	4,250	1,859	319	9,063
1982 [*]	2,711	4,092	1,845	333	8,981
1983 [*]	2,710	4,064	1,863	360	8,997
1984	2,823	4,158	1,989	388	9,358
1985 [*]	2,942	4,075	2,051	413	9,481

^{*}Estimated. ^{*}Revised.

[†]Data do not add to total shown because of independent rounding.

Sources: 1980—United Nations. 1983 Energy Statistics Yearbook. New York, 1984, p. 2; 1981-84—United Nations. 1984 Energy Statistics Yearbook. New York, 1986, p. 2; and 1985—U.S. Bureau of Mines estimates.

VALUE OF WORLD MINERAL PRODUCTION

The comprehensive study on value of world mineral production, which has been prepared periodically during the past 33 years for the French language mineral industry periodical, *Annales des Mines*, was extended for another 5-year increment in the July-August-September 1985 issue of that journal. The series now provides nearly uniform data for the years 1950, 1953, 1958, 1963, 1968, 1973, 1978, and 1983 for a selected list of crude mineral commodities (see table 3 of this chapter for the list of commodities included) for all world producers. The study fixes the constant 1983 dollar value of total world production of these commodities at about \$930.4 billion for 1983, an increase of 27.7% over the level of output of 1978 (the last year for which complete commodity-by-commodity and country-by-country data are available), but 9.2% below the historic estimated production value

high achieved in 1980. Considering the change between 1978 and 1983 only, without consideration of estimated year-by-year results for 1979, 1980, 1981, and 1982, the indicated annual value growth rate would be about 5%, which the source publication attributes to a 0.7% annual average decline in the physical volume of production, offset by a 5.8% annual average increase in the inflation-corrected price index for crude minerals.

The data on the value of the selected commodities listed in the French source have been roughly extrapolated by the U.S. Bureau of Mines to cover the full range of crude mineral commodities covered in the *Minerals Yearbook* on the basis of the share of total U.S. crude mineral output value accounted for by those selected commodities covered in the French source. The data upon which the extrapolations were based are as follows:

Year	Million current U.S. dollars		
	Value of total U.S. crude mineral output	Value of U.S. output of selected minerals covered in Annales des Mines ¹	Percentage of total accounted for by selected commodities
1950	11,835	10,405	87.8
1953	14,382	12,511	87.0
1958	16,526	13,754	83.2
1963	19,620	16,002	81.6
1968	24,974	20,591	82.4
1973	36,788	30,579	83.1
1978:			
Nonfuel minerals	19,821	10,008	50.5
Fuel minerals	^a 65,072	^a 65,072	100.0
Total or average	^a 84,893	^a 75,080	88.4
1983:			
Nonfuel minerals	21,116	10,581	50.1
Fuel minerals	^a 158,099	^a 158,099	100.0
Total or average	^a 179,215	^a 168,680	94.1

¹Values as reported by the U.S. Bureau of Mines, not those reported in Annales des Mines. Corresponding values as reported in Annales des Mines, in million dollars, were as follows: 1950—\$10,406; 1953—\$12,435; 1958—\$12,440; 1963—\$15,742; 1968—\$20,232; 1973—\$29,876; 1978: nonfuel minerals—\$8,766; fuel minerals—\$65,072; total—\$73,838; 1983: nonfuel minerals—\$9,544; fuel minerals—\$158,099; total—\$167,643.

^aBecause the U.S. Bureau of Mines no longer has responsibility for mineral fuel statistics and because the U.S. Department of Energy, which is responsible for such data, has no published series on the value of crude fuel mineral production, the data provided here for fuel minerals are those from Annales des Mines.

The published figures for total value of world production appearing in Annales des Mines for the selected group of commodities were increased on the basis of the percentages in the right-hand column of the foregoing tabulation for each year shown, using the French data for fuels commodities values for 1978 and 1983 in the absence of official U.S. figures. It should be stressed that it is recognized that this is only a very crude estimation of the value of total world mineral production, because in all likelihood, the true ratio between the value of the commodities included in the French study and the value of crude minerals not included therein for other countries does not correspond exactly to the ratio demonstrated for the United States.

The results of the extrapolation outlined above appear in the first tabulation under the heading "Production" in a previous part of this chapter. That tabulation also includes an extrapolation of the Annales des Mines 1983 figures for 1984 and 1985, the latter based on the United Nations index of world extractive mineral industry output.

GEOGRAPHIC DISTRIBUTION OF WORLD MINERAL OUTPUT VALUE

Available information is inadequate to extrapolate to 1984 and 1985 the 1983 data on geographic distribution of world mineral output value published in Annales des

Mines. However, those data, together with corresponding data for 1978 and 1950, are presented in table 2 of this chapter to demonstrate the shifts in relative importance of the various countries, particularly the changes that occurred during the 1978-83 period.

Perhaps the most noteworthy change during that period does not involve shifts in ranking, for while there were a number of changes, all countries that ranked among the top 20 countries in 1978 also were among the top 20 in 1983 with the sole exception of Poland. Even that country's drop (from 16th in 1978 to 22d in 1982) was largely the result of the conditions of domestic unrest that were vented openly in 1983 to a far greater extent than in 1982 or 1984. That is to say, leading world producers of 1978 have by and large continued to be leading world producers in 1983. Instead of ranking shifts, it seems appropriate to consider the proportion of the total accounted for by leading countries. In both 1978 and 1983, the U.S.S.R., the United States, Saudi Arabia, and China ranked first to fourth, respectively, among producers. Of these, the Soviet Union, which accounted for slightly under 20% of the world total in 1978, advanced its share to nearly 24% in 1983, and similarly the United States advanced from almost 15.5% in 1978 to over 18% in 1983. In contrast, Saudi Arabia, in curtailing oil production in the face of the market

glut, recorded a drop in its production share from over 8% to a little above 6% between 1978 and 1983, while China, despite quantitative production increases, registered a decline in its share of over 0.6%. Moving further down the list of producers in terms of their ranking, the United Kingdom and Mexico each registered very substantial gains in shares of the total, these based on increases in crude oil and natural gas production, the former seeking both independence from energy imports and increased export earnings, and the latter striving chiefly for increased export earnings. In contrast, Iran and Iraq, embroiled in their war since 1980, lost both ranking among leading producers and shares of the total. Among others of the top 20 ranked countries, only 3 showed increased shares in the total between 1978 and 1983—Algeria, Australia, and Canada—while 9 registered declines—the Federal Republic of Germany, Indonesia, Kuwait, Libya, the Netherlands, Nigeria, the Republic of South Africa, the United Arab Emirates, and Venezuela. Considering these last 12 countries mentioned (3 with gains, 9 with losses), most of those recording reduced shares of the total were countries in which petroleum and natural gas were the only significant products, and of these, only Algeria showed an increased share of the world total.

From the viewpoint of constant dollar earnings, and again examining only the top 20 ranked countries, 12 showed an increase in value of output between 1978 and 1983, while 8 showed a drop in the value of output. Among the latter, seven were countries in which the petroleum industry was dominant; only the Federal Republic of Germany could be regarded as diversified, and even in its case, the decline was heavily in the energy products area.

Examining the value of world mineral production from the viewpoint of its subdivision between major groups of countries gives the following results:

Country group	Share of total world value of listed commodities (percent)		
	1950	1978	1983
Market economy countries:			
Developed	67.46	30.20	33.71
Developing:			
Organization of Petroleum Exporting Countries (OPEC) ..	9.98	30.56	22.02
Other	5.99	9.69	11.48
Centrally planned economy countries	16.57	30.55	32.79

The loss suffered by the Organization of Petroleum Exporting Countries (OPEC) is the most significant shift between 1978 and 1983. This reduced those countries' total share of the value of world mineral production to a level below that of 1973 (27.04%). It seems somewhat surprising that the combined figures for the countries of the European Communities (EC) advanced only by 0.4% from the 7.0% level of 1978, when the growth in the United Kingdom, chiefly the result of that country's vastly increased production of crude oil and natural gas, is considered and when gains by Denmark, Greece, Ireland, Italy, and the Netherlands are also considered. However, substantial reduction in the value of crude mineral output in Belgium, France, and the Federal Republic of Germany, coupled with more substantial value increases elsewhere, served to curb the EC's growth.

Finally, examination of the 1983 value total from the viewpoint of its physical geographic distribution by continent indicates that Eastern Europe (including Asiatic U.S.S.R.) assumed first rank, with 26.6% (23.5% in 1978); followed by Asia (including the Near East), with 24.7% (32.0% in 1978); northern North America (Canada and the United States), with 21.1% (18.5% in 1978); Western Europe, with 9.2% (8.3% in 1978); Africa, with 8.4% (9.6% in 1978); Latin America, with 8.3% (6.4% in 1978); and Oceania, with 1.7% (1.7% in 1978). Within the area categorized as "Asia" in the foregoing breakdown, the countries of the Near East, including the several huge crude oil and natural gas producers of the Persian Gulf, accounted for 14.4% of the 1983 total, far under the 21.1% share for these countries in 1978.

COMMODITY DISTRIBUTION OF WORLD MINERAL OUTPUT VALUE

As in the case of the geographic distribution of world mineral output value, the inadequacy of information on unit value of production in the various countries for the various commodities precludes any reliable extrapolation of the various commodities' shares of the totals published for 1983 in *Annales des Mines* to 1984 or 1985. Therefore, the commodity breakdown of the 1983 total from that source has been included in this chapter as table 3 to provide the most recent reliable measurement of the relative value of the various mineral commodities.

The continued growth in the preeminence of the fuel minerals is immediately evident:

crude oil alone accounted for 58.2% of the 1983 total of the reported commodities (55.6% in 1978), while natural gas and natural gas liquids advanced to 19.4% (13.3% in 1978). In contrast, the aggregate value for all coals accounted for only 12.7% of the 1983 total compared with 17.6% of the 1978 total, this despite a 9% increase in

the constant dollar value of the coal mined comparing 1978 results with 1983 results, and an even greater increase in the weight of coal mined in the years cited.

The following tabulation summarizes the shares of total value of listed commodities accounted for by each of the major commodity groups:

Commodity group	1950	1963	1968	1973	1978	1983
Mineral fuels ¹	76.43	76.62	72.91	76.98	87.05	90.80
Metals ¹	19.18	17.98	20.96	18.64	9.32	6.86
Industrial minerals	4.39	5.40	6.13	4.39	3.63	2.34

¹Uranium is included with mineral fuels rather than with metals.

Table 1.—World production of major mineral commodities¹

Commodity	1981	1982	1983	1984 ^P	1985 ^e
METALS					
Aluminum:					
Bauxite, gross weight ²					
thousand metric tons	85,347	79,318	78,644	88,173	85,133
Alumina, gross weight	32,070	27,972	29,514	33,491	31,928
Unalloyed ingot metal	15,079	13,408	13,910	15,664	15,289
Antimony, mine output, metal content					
metric tons	57,719	55,503	50,855	54,779	55,012
Arsenic, white ³	43,731	43,525	38,527	44,099	45,030
Beryl concentrate, gross weight ³	9,624	8,167	9,026	8,925	8,789
Bismuth ⁴	3,748	3,961	3,838	3,817	4,162
Cadmium, smelter	17,380	16,422	17,527	19,171	18,662
Chromite, gross weight ³					
thousand metric tons	9,088	8,188	8,010	9,355	9,935
Cobalt:					
Mine output, metal content	30,749	24,522	23,719	32,540	36,203
Metal, refined	25,780	19,251	17,825	23,231	25,598
Columbium-tantalum concentrate ³ ⁵	35,637	25,456	21,146	35,755	38,037
Copper:					
Mine output, metal content					
thousand metric tons	7,777	7,619	7,712	7,995	8,114
Metal:					
Smelter:					
Primary ⁶	7,489	7,381	7,548	7,691	7,615
Secondary ⁷	513	552	595	653	770
Refined:					
Primary ⁶	7,919	7,769	7,990	7,998	8,019
Secondary ⁷	1,259	1,253	1,240	1,137	1,211
Gold, mine output, metal content					
thousand troy ounces	41,251	43,127	44,996	46,408	48,217
Iron and steel:					
Iron ore, iron ore concentrates, iron ore agglomerates, gross weight					
thousand metric tons	858,162	780,338	738,058	830,548	858,817
Metal:					
Pig iron	501,842	457,221	462,856	495,611	503,690
Ferrous alloys	14,363	13,020	12,918	14,665	14,617
Steel, crude	706,651	643,801	662,794	709,427	714,970
Lead:					
Mine output, metal content	3,366	3,422	3,359	3,256	3,392
Metal:					
Smelter:					
Primary ⁶	3,126	3,220	3,251	3,180	3,347
Secondary ⁷	2,257	2,076	2,030	2,314	2,223
Refined:					
Primary ⁶	3,119	3,176	3,236	3,157	3,296
Secondary ⁷	2,211	2,044	2,022	2,309	2,221
Magnesium metal, smelter, primary					
metric tons	308,199	253,620	259,640	326,801	327,044
Manganese ore, gross weight					
thousand metric tons	23,557	24,223	21,945	23,611	24,423
Mercury, mine output, metal content					
76-pound flasks	210,885	197,901	180,800	195,286	196,250

See footnotes at end of table.

Table 1.—World production of major mineral commodities¹—Continued

Commodity	1981	1982	1983	1984 ^b	1985 ^c
METALS—Continued					
Molybdenum, mine output, metal content metric tons	108,864	94,953	63,768	97,298	97,586
Monazite concentrate (source of rare-earth metals and thorium) do	19,972	16,423	26,044	29,226	31,454
Nickel:					
Mine output, metal content thousand metric tons	726	618	667	755	777
Metal, smelter do	692	578	636	700	710
Platinum-group metals, mine output thousand troy ounces	6,931	6,424	6,525	7,648	7,951
Selenium, smelter ^{3 5} metric tons	1,285	1,132	1,325	1,351	1,123
Silver, mine output, metal content thousand troy ounces	361,617	382,969	392,038	415,087	412,273
Tellurium, smelter ^{3 4 5} metric tons	105	102	86	100	98
Tin:					
Mine output, metal content do	238,008	219,925	196,902	198,432	191,103
Metal, smelter do	235,931	221,000	199,828	199,669	193,715
Titanium concentrate, gross weight:					
Ilmenite ^{2 8} thousand metric tons	3,648	3,029	*2,674	*3,086	*3,315
Rutile ^{2 4} do	362	339	310	352	365
Titaniferous slag do	1,129	1,050	1,052	1,143	1,280
Tungsten, mine output, metal content metric tons	50,269	46,921	40,821	46,478	46,989
Uranium oxide, mine output, U ₃ O ₈ content ^{3 5} do	51,590	46,380	42,388	42,105	40,410
Vanadium, mine output, metal content do	34,983	32,771	28,054	31,108	*30,540
Zinc:					
Mine output, metal content thousand metric tons	5,919	6,126	6,351	6,564	6,674
Metal, smelter:					
Primary ⁶ do	5,757	5,507	5,841	6,106	6,209
Secondary ⁷ do	325	359	360	358	358
Zirconium concentrate ⁴ do	645	710	675	734	775
INDUSTRIAL MINERALS					
Asbestos do	4,349	4,036	4,179	4,106	4,111
Barite do	8,216	7,259	5,427	5,762	6,052
Boron minerals do	2,558	2,271	2,235	2,517	2,430
Bromine ³ do	344	383	364	396	379
Cement, hydraulic do	886,397	887,556	916,363	947,445	971,800
Clays: ³					
Bentonite ⁵ do	6,845	5,201	5,241	5,891	5,666
Fuller's earth ⁵ do	1,886	1,974	2,193	2,294	2,453
Kaolin do	19,796	18,383	19,480	21,186	21,193
Corundum, natural do	22,420	18,795	14,642	14,755	15,245
Diamond: ³					
Gem ^e thousand carats	10,171	10,243	23,039	26,153	27,155
Industrial ^e do	29,597	30,188	32,353	37,364	39,216
Total do	39,768	40,431	55,392	63,517	66,371
Diatomite ³ thousand metric tons	1,694	1,716	1,697	1,754	1,770
Feldspar ³ do	3,230	3,479	3,631	3,780	3,895
Fluorspar do	5,095	4,494	4,224	4,781	4,779
Graphite ⁶ metric tons	588,848	562,390	602,398	621,882	613,929
Gypsum thousand metric tons	76,176	72,436	78,669	78,714	80,939
Iodine metric tons	12,024	12,254	12,540	12,437	12,311
Lime ³ thousand metric tons	116,955	109,193	110,603	113,698	112,066
Magnesite ⁴ do	11,320	11,389	11,116	11,904	11,982
Mica ³ do	240	216	243	276	244
Nitrogen: N content of ammonia do	76,972	75,868	78,526	84,395	85,549
Perlite do	1,677	1,660	1,544	1,640	1,631
Phosphate, gross weight:					
Phosphate rock do	143,001	127,385	139,404	152,488	151,363
Thomas slag do	3,381	2,825	2,484	2,591	2,715
Guano do	8	21	7	7	7
Potash, marketable, K ₂ O equivalent do	27,075	24,509	27,418	29,348	28,618
Pumice ^{3 5} do	12,423	12,198	10,855	11,487	10,986
Salt do	171,415	163,584	159,151	171,185	169,241
Sodium compounds, n.e.s. ³					
Carbonate do	28,014	26,800	27,831	28,237	28,693
Sulfate do	4,602	4,381	4,235	4,261	4,216
Strontium minerals ^{3 5} metric tons	124,555	113,999	137,059	124,499	125,827

See footnotes at end of table.

Table 1.—World production of major mineral commodities¹—Continued

Commodity	1981	1982	1983	1984 ^p	1985 ^e
INDUSTRIAL MINERALS—Continued					
Sulfur, elemental basis:					
Elemental ⁹ ----- thousand metric tons	16,241	13,929	12,699	14,035	15,002
From pyrites ----- do	10,334	9,966	9,941	9,756	10,044
Byproduct ¹⁰ ----- do	26,975	26,975	27,890	28,816	29,810
Total ----- do	53,550	50,870	50,530	52,607	54,856
Talc, soapstone, pyrophyllite ----- do	7,269	7,055	7,072	7,576	7,534
Vermiculite ³ ----- metric tons	523,248	508,387	444,215	494,023	503,953
MINERAL FUELS AND RELATED MATERIALS					
Carbon black ³ ----- thousand metric tons	4,179	4,009	4,101	4,561	4,700
Coal:					
Anthracite ----- million metric tons	280	286	295	308	313
Bituminous ----- do	2,557	2,655	2,663	2,815	2,924
Lignite ----- do	996	1,031	1,051	1,099	1,144
Total ----- do	3,833	3,972	4,009	4,222	4,381
Coke: ¹¹					
Metallurgical ----- thousand metric tons	353,340	338,855	328,982	339,654	344,887
Other ----- do	11,747	11,556	11,662	11,782	11,669
Gas, natural, marketed ----- billion cubic feet	54,955	54,660	54,745	59,357	60,555
Natural gas liquids ⁹ ----- million 42-gallon barrels	1,350	1,356	1,406	1,545	1,553
Peat ----- thousand metric tons	250,626	257,191	256,068	256,479	256,830
Petroleum:					
Crude ----- million 42-gallon barrels	20,403	19,338	19,212	19,757	19,365
Refined ----- do	21,586	20,918	20,889	21,360	21,168

^eEstimated. ^pPreliminary.

¹Incorporates numerous revisions from the table corresponding to this table in previous editions of this chapter. Figures generally conform to those published in appropriate commodity chapters of volume I of the Minerals Yearbook, 1985 edition.

²Includes bauxite equivalent of nepheline syenite concentrate and alunite ore produced in the U.S.S.R. (the only producer on record of such materials as a source of aluminum).

³Excludes data for China (no adequate basis for estimation available).

⁴Excludes data for the United States (withheld to avoid disclosing company proprietary data).

⁵Excludes data for the U.S.S.R. (no adequate basis for estimation available).

⁶Includes all metal clearly identified as primary as well as all metal that cannot be subdivided clearly between primary and secondary (see footnote 7).

⁷Includes only that metal that is clearly identified as secondary. Some countries do not distinguish between primary and secondary, and for some of these, no basis is available for estimating the breakdown of total production. For such countries, the total has been included under "Primary" (see footnote 6).

⁸Includes leucocene.

⁹Comprises sulfur produced by the Frasch process plus sulfur mined in the elemental state from ores.

¹⁰Comprises sulfur recovered from coal gasification, metallurgical operations (except pyrite processing), natural gas, petroleum, tar sands, spent oxides, and gypsum, whether recovered in the elemental state or as a sulfur compound.

¹¹Production of coke other than metallurgical by China and the U.S.S.R. is included with "Coke: Metallurgical."

At this point, it should be noted that had the Annales des Mines staff had available to them comprehensive worldwide data on the mineral commodities excluded from their study—most notably the construction materials such as sand and gravel, stone, cement, lime, etc.—and had they then included such data in the study, the shares reported for mineral fuels and for metals would be marginally lower than those just presented, while the shares for industrial minerals would probably more than double. Thus, the foregoing data array tends to belittle the significance of nonmetallics and to somewhat overstate the relative importance of fuel minerals and metals as a result of incomplete data on the nonmetals.

Among the individual commodities examined in the French study, crude petroleum retained first rank. Among the leading commodities, natural gas, third ranked in 1978, displaced that year's second-ranked

anthracite and bituminous coal to third rank in 1983; natural gas liquids advanced from fifth rank in 1978 to fourth rank in 1983; and gold moved up from seventh rank in 1978 to fifth rank in 1983. Lignitic coal also moved ahead from 8th rank in 1978 to 7th rank in 1983, and silver advanced from 18th rank in 1978 to 9th rank in 1983. Notable declines were registered between 1978 and 1983 by iron ore (from 4th to 6th), by copper (from 6th to 8th), and by phosphates (from 9th to 11th). Uranium ranked 10th in both years; potash, 12th; and salt, 13th. These 13 commodities collectively accounted for 95% of the total value of 1978 world mineral output and for over 97% of the 1983 total for the commodities included in Callot's study.

Among noteworthy shifts in the commodities of lesser value was the improvement for elemental sulfur from 21st to 15th (this ranking would be higher if the total value of

pyrite, which ranked 32d in 1978 and 27th in 1983, were added), the increase of natural sodium carbonate from 31st to 25th, and declines recorded for tin (11th to 18th), lead

(from 15th to 23d), tungsten (from 26th to 33d), antimony (from 39th to 46th), and columbite-tantalite (from 42d to 49th).

TRADE

In 1984, the aggregate value of total world international trade in mineral commodities was estimated at \$632.3 billion (current dollars), fractionally below the 1983 level and 20.8% below the historic record high set in 1980. Comparable data for 1985 were not available for inclusion in this chapter, but available partial information suggests that

the 1985 level probably will prove to be below that registered for 1984, chiefly as the result of declining values for energy commodities. The following tabulation summarizes the development pattern in mineral commodity trade for 1980-84, inclusive, as well as the role of that trade in total commodity trade:

Year	Estimated value of all mineral commodities traded (million current dollars)	Change from previous year (percent)	Mineral commodities' share of all commodities traded (percent)
1980 -----	\$798,600	+37.4	39.9
1981 -----	764,600	-4.3	38.9
1982 -----	693,800	-9.3	37.5
1983 -----	632,500	-8.8	34.9
1984 -----	632,300	-0	33.2

*Revised.

Table 4, which serves as the basis for the foregoing estimates of total mineral trade that appear in the foregoing tabulation, provides reported data on the value of major mineral commodity groups' trade and total commodity trade for 1980-84. Details on major mineral commodity trade by region, such as that provided in tables 8-10 in the 1976 edition of this chapter, may be obtained for more recent years from the

United Nations Monthly Bulletin of Statistics for May 1986.

Table 5 demonstrates the declining share of major mineral commodity trade accounted for by mineral fuels since the recent peak years of 1981 and 1982. Percentage changes in dollar values for the major mineral commodity groups are given in table 6.

CONSUMPTION

NONFUEL MINERAL COMMODITIES

World consumption of iron ore, iron and steel scrap, aluminum, cadmium, and magnesium advanced in 1985 with respect to levels set in 1984, while that of the traditional older major nonferrous metals—copper, lead, and zinc—together with that of nickel, declined. The declines reported for these metals, however, were relatively modest, and 1985 consumption levels for each exceeded those of 1983. In the case of the four nonmetals, for which world consumption is provided in table 7, there were higher consumption levels in 1985 for a second successive year, and for three of the four, the use level increased for a third consecutive year.

In the case of the nonferrous metals, where total world consumption has been separated between market economy countries and centrally planned economy countries, there are differences in the change in consumption levels between the two major country groups, with the centrally planned economy countries recording a marginal downturn in 1985 only in the case of zinc, with tin use on a par with that of 1984. However, higher consumption levels in these countries for copper, lead, and nickel were not sufficiently higher to compensate for reduced use levels among the market economy countries.

These nonferrous metal consumption figures have been reported in this fashion, separating use by the two major country

groups both because of this disparate pattern and because there are substantial differences between production estimates for these commodities made for the centrally planned economy countries by the U.S. Bureau of Mines and by Metallgesellschaft AG, the source for these consumption figures. Inasmuch as such production figures are used to calculate the apparent consumption figures that are published, a considerable difference would result in the use level if Bureau production figures were to be substituted for those of Metallgesellschaft. For instance, if the Bureau estimate of aluminum production were substituted, the use of that metal in centrally planned economy countries would be lower by nearly 120,000 tons than that reported in table 7. Similarly, copper consumption would be about 380,000 tons lower, lead consumption would be about 57,000 tons lower, and zinc consumption would be about 200,000 tons lower. It is noteworthy that the disparities in the cases of aluminum and copper have been reduced over those reported in the 1984 edition of this chapter, and that U.S. Bureau of Mines figures and Metallgesellschaft figures for cadmium, magnesium, nickel, and tin ore now are quite close. In

the case of zinc, however, the difference between the two agencies' figures has increased.

MINERAL FUEL COMMODITIES

Table 7 also includes data on mineral fuel consumption, with use of each fuel expressed in terms of standard coal equivalent (SCE), so as to make interfuel comparisons clear, as well as to permit their summation so as to make clear the overall trend in energy consumption. From the data, it is evident that overall world energy consumption increased in 1985, despite the decline in growth registered by liquid fuels, with hydro, geothermal, and nuclear electricity advancing by the largest percentage, followed by solid fuels and by natural gas, although in terms of units of SCE, solid fuels made the largest gain, being the dominant energy source recording a gain. It is perhaps noteworthy that although liquid fuel consumption did decline, the amount of the drop was quite modest, with the result that the 1985 level, although smaller than that of 1984, was above the levels of 1983 and 1982 and only fractionally below that of 1981 and 1.4% below the historic high to date of 3,681 million metric tons of SCE set in 1978.

INVESTMENT

Comprehensive world mineral industry investment data do not exist, but limited materials published on aggregates of investment in some elements of the world mineral industry suggest strongly a reduced investment level, at least in market economy countries, in both 1984 and 1985. Steel industry investment in Organization for Economic Cooperation and Development countries are not yet available for 1985 but, as shown in table 8, declined appreciably in 1984 in European Economic Community countries, Japan, and the United States. Although other countries listed in table 8 recorded increases, these increases by smaller steel producers did not offset reductions by the major countries listed. If data for the world steel industry as a whole, including the centrally planned economy countries, were available, the declining trend presumably would be modified in an upward direction, but the absence of comparable information on these countries makes it impossible to ascertain whether the overall trend was up or down, even for 1984, much less for 1985.

Market economy petroleum industry in-

vestment as reported by Chase Manhattan Bank, and as presented for 1980-84 in table 7 of the 1984 edition of this chapter, have not been updated by the source in sufficient time for inclusion here; thus, no table similar to that appearing in the 1984 edition has been included this year. Considering the plight of the petroleum industry, however, it would seem highly unlikely that the 1985 investment level reached even the \$115,150 million level of 1984. With the oil industry, as with the steel industry, it is also almost assured that the investment rate in centrally planned economy countries exceeded that of the market economy countries.

The limited data presented on U.S. foreign investment in mineral industry activities in table 8 of the 1984 edition of this chapter have been further reduced by the omission of results of "mining" in the areas of "reinvested earnings" and "equity and intercompany account flows" as can be seen in table 8 of this chapter. Further, data for prior years have been significantly altered by the source agency. Thus, data presented this year are not fully comparable to the historic series.

TRANSPORTATION

MARINE TRANSPORT

Bulk carriers, freighters, and tankers are the three classes of vessels engaged in transporting mineral commodities. It should be noted that vessels in each of the three categories are not devoted wholly to mineral commodity transport. Bulk carriers move agricultural products as well as crude minerals and mineral fertilizers, while freighters, because of their great variety, can be devoted wholly to hauling mineral products or wholly to moving nonmineral goods, as well as carrying mixed mineral and nonmineral cargoes. Tankers, although largely engaged in moving crude oil and refinery products, also transport liquid chemicals, molasses, whale oil, and wine.

Although physical characteristics of vessels—size, draft, age, crew requirements,

type of propulsion system, etc.—as well as fuel costs have an undeniable influence on shipping industry performance, problems of and changes in the quantity and type of material moved also significantly affect the shipping sector of the world economy. Unfortunately, comprehensive data in this regard are not available.

Bulk Carriers.—During 1985, the world's bulk carrier fleet increased relative to that of 1984 by 227 vessels, compared with vessel increases of 176 and 169 in 1984 and 1983, respectively, a 4.1% increase in the number of vessels. Again in 1985, as in the past 5 years, there was an increase in the total deadweight tonnage of bulk carriers. The following tabulation shows the distribution of the bulk carrier fleet of the world for 1985:

Country of registry	Number of vessels	Deadweight tonnage (thousand long tons) ¹
Liberia	764	40,072
Panama	952	31,683
Greece	760	26,943
Japan	497	25,535
Korea, Republic of	176	7,264
Norway	90	6,212
China	180	5,954
Philippines	153	5,724
Italy	102	5,406
Cyprus	168	5,320
U.S.S.R.	221	5,222
India	116	5,093
United Kingdom	96	4,924
Brazil	90	4,677
Taiwan	68	4,040
Singapore	83	3,985
Belgium	33	2,506
Romania	64	2,446
Spain	79	2,396
France	38	2,351
Poland	90	2,277
Turkey	58	2,072
Yugoslavia	63	1,922
Malta	58	1,602
Australia	31	1,518
Other	757	28,689
Total	5,787	235,833

¹Erroneously labeled as "thousand metric tons" in the 1984 Minerals Yearbook.

Freighters.—The world's freighter fleet decreased again in 1985 with 82 vessels less than in 1984. In contrast to the decrease in the number of vessels, both the average

gross and the average deadweight tonnages again increased. The following tabulation shows the distribution of the freighter fleet of the world for 1985:

Country of registry	Number of vessels	Deadweight tonnage (thousand long tons) ¹
Panama	2,068	18,123
U.S.S.R.	1,793	11,967
Greece	733	8,112
United States	417	7,353
China	692	7,024
Japan	633	6,280
Liberia	386	4,818
Germany, Federal Republic of	414	3,789
Cyprus	451	3,324
Singapore	298	3,292
United Kingdom	206	2,853
Netherlands	363	2,491
India	108	2,357
Yugoslavia	186	1,859
Taiwan	127	1,845
France	138	1,840
Denmark	159	1,816
Korea, Republic of	240	1,778
Italy	230	1,580
Poland	184	1,570
Other	4,111	32,471
Total	13,937	126,542

¹Erroneously labeled as "thousand metric tons" in the 1984 Minerals Yearbook.

Tankers.—During 1985, the world's tanker fleet decreased by 26 vessels, and the average gross and the average deadweight tonnages decreased by 3.2% and 4%, respectively. The following tabulation presents the distribution of the tanker fleet of the world for 1985:

Country of registry	Number of vessels	Deadweight tonnage (thousand long tons) ¹
Liberia	694	74,137
Japan	468	28,456
Greece	309	21,978
Panama	565	19,685
United States	258	17,535
Norway	182	13,406
United Kingdom	227	12,407
France	86	8,850
Bahamas	58	7,649
U.S.S.R.	448	7,546
Cyprus	91	6,657
Italy	227	5,969
Spain	101	5,733
Denmark	79	4,382
Singapore	97	3,915
Brazil	83	3,723
Saudi Arabia	65	3,356
Netherlands	69	3,250
Other	1,349	45,711
Total	5,456	292,345

¹Erroneously labeled as "thousand metric tons" in the 1984 Minerals Yearbook.

Since the historic peak in 1977, there has been a steady decline of the overall size of the world's tanker fleet, measured in terms of the deadweight tonnage. In conjunction with this decline, there has also been a steady decrease in the size of the tankers. In 1979, the historic peak for the size of tankers, vessels with a deadweight tonnage of over 200,000 tons, accounted for 57.7% of the total deadweight tonnage in tankers. This figure has declined in each year since, falling to 48.9% in 1985. As the total deadweight tonnage has decreased for ships over 200,000 tons, the percentage of ships under 200,000 tons has steadily increased, as shown in the following tabulation, which is based on data published on page 20 in the British Petroleum Co. PLC annual publication, BP Statistical Review of World Energy, June 1986.

Size group (deadweight long tons) ¹	Percent of total				
	1981	1982	1983	1984	1985
10,000-25,000	4.3	4.4	4.6	4.7	5.0
25,000-45,000	8.1	9.0	9.7	9.8	10.5
45,000-65,000	5.2	5.3	5.4	5.8	6.1
65,000-125,000	17.3	17.1	17.1	17.1	18.0
125,000-200,000	9.7	9.9	10.2	10.7	11.5
200,000-320,000	45.8	44.3	42.5	41.4	38.4
320,000 and over	9.6	10.0	10.5	10.5	10.5

¹Revised.

¹Erroneously labeled as "thousand metric tons" in the 1984 Minerals Yearbook.

The same source shows that there was a significant increase in the deadweight tonnage of tankers scrapped in 1985, a new high of 26.5 million tons or 50.6% more than was scrapped during 1984 and 12.8% more than was scrapped during 1983, the previous peak year. Again in 1985, as in every year since 1980, the vast majority of the total of 26.5 million deadweight tons scrapped, 73.1%, was accounted for by vessels over 160,000 deadweight tons, an increase of 73.9% over the tonnage in this size scrapped in 1984. The deadweight tonnage of tankers under construction and on order at yearend 1985 totaled 11.6 million tons, of which 4.5 million tons was in vessels of 65,000 to 125,000 tons, 2.6 million tons was in vessels of 200,000 to 320,000 tons, 2.4 million tons was in vessels of 25,000 to

45,000 tons, 1.1 million tons was in vessels of 45,000 to 65,000 tons, 0.9 million tons was in vessels of 10,000 to 25,000 tons, and 0.2 million tons was in vessels of 125,000 to 200,000 tons.

OCEAN FREIGHT RATES

Data on ocean freight rates, last published by the United Nations in their Monthly Bulletin of Statistics for December 1984, was updated in the December 1985 issue of that periodical through the third quarter of 1985. In overview, the dry cargo rates, which on average fell slightly in 1983 from 1982 levels, edged upward again in 1984, and then moved generally downward through the three reported quarters of 1985. For example, the United Kingdom (British Shipping) time charter average index (1976=100) stood at 107 for 1982, slumped to 98 for 1983, advanced to 105 for 1984, and dropped from 106 for January 1985 to only 82 for September 1985, averaging 94 for the first 9 months of that year. By way of comparison, the Norway (Norwegian Shipping News) time charter average index (1970=100) was recorded as follows: 1982, 171; 1983,

160; 1984, 150; January 1985, 176; September 1985, 149; and the average for January-September 1985, inclusive, was 151.

Norwegian tanker rate indexes, which are divided into five classes (according to vessel size and the cargo handled), generally showed the same pattern noted for dry cargo. The tanker rate indexes were down from 1982 to 1983, up slightly in 1984, and then down across the months of 1985 that were reported—while those for the larger vessels edged upward over those of 1982 through 1984, but recorded drops across the three quarters of 1985. In the latter case, the declines were not so large as to reduce the average for the months of 1985 available to levels below those of 1982.

PANAMA AND SUEZ CANALS

Data on 1985 mineral commodity shipments through the Panama Canal were not available in time for inclusion in this chapter, but data on 1984 shipments showed that the total shipments of mineral commodities remained at about the same level as in 1983, as shown in the following tabulation:

	Fiscal year ¹				
	1980	1981	1982	1983	1984
Number of transits:					
Commercial ocean traffic	13,507	13,884	14,009	11,707	11,230
Other traffic	1,218	1,166	1,262	1,247	1,293
Total	14,725	15,050	15,271	12,954	12,523
Cargo moved (thousand metric tons):					
Commercial ocean traffic:					
Mineral commodities	99,520	99,969	^a 111,468	^a 72,229	72,213
Other commodities	70,379	74,001	^a 76,961	^a 75,698	70,512
Subtotal	169,899	173,970	188,429	147,927	142,725
Other traffic	403	308	291	364	336
Total	170,302	174,278	188,720	148,291	143,061

^aRevised.

¹Year ending Sept. 30 of that stated.

In fiscal year 1984, mineral commodities accounted for 50.6% of all commercial traffic through the Panama Canal, a figure slightly higher than the 48.8% (revised) recorded for 1983 but still lower than the level for the past several years. Table 11 distributes mineral commodity trade through the canal during 1982-84 by major group.

In terms of major mineral commodity groups, fuels remained dominant in 1984 but were only 57.2% of the total, compared with 62.8% (revised) of the total in 1983 and 74.4% in 1982. Metallic commodities re-

mained in second place, accounting for 22.4% of total mineral commodity tonnage (18.5% in 1983), with industrial minerals again ranking third with 20.3% (18.6% (revised) in 1983). Steel semimanufactures were the dominant single metals class; fertilizer materials remained the overwhelmingly dominant industrial minerals class; refined petroleum became the dominant fuel commodity. The rise in the level of total mineral commodity trade was chiefly the result of lower total commercial cargo coupled with increases in metal commodity trade of 21% and nonmetallic commodity

trade of 9% compared with those of 1983.

For greater detail on mineral movements through the Panama Canal, including direction of movements to and from the canal, the reader is referred to the Panama Canal Annual Report.

In contrast to the previous 2 years, the Suez Canal showed a decline in mineral commodity trade in 1985, while the movements of other commodities continued to increase, as shown in the following tabulation:

	1982	1983	1984	1985
Number of transits:				
Commercial ocean traffic -----	21,398	21,026	^r 20,157	18,654
Other traffic -----	1,147	1,198	^r 1,204	1,137
Total -----	22,545	22,224	21,361	19,791
Cargo moved (thousand metric tons):				
Commercial ocean traffic:				
Mineral commodities -----	136,267	^r 153,999	^r 159,020	149,833
Other commodities -----	95,126	^r 102,706	^r 104,708	107,763
Total -----	231,393	256,705	263,728	257,596

^rRevised.

In 1985, mineral commodities accounted for 58.2% of all commercial traffic through the Suez Canal, a drop of 5.8% from the amount transited during 1984.

Table 12, which distributes mineral commodity trade through the Suez Canal by commodity and by direction, shows that the fuels remained the single largest major group of mineral commodities moved through the canal, with the metals group ranking second and the industrial minerals group ranking third. As in past years, iron ore was the most significant component of the metallic commodity group while fertilizer materials ranked first among the industrial minerals, as remained the case for the Panama Canal. Significant decreases were registered during 1985 in the amount of cement moved (down 50.4%) and crude petroleum (down 11.1%). Greater detail on Suez Canal mineral shipments can be found in the Suez Canal Annual and Monthly Reports.

OVERLAND TRANSPORT

Limitation of time and inadequacy of comparable data have precluded comprehensive assessment of overland international transportation of mineral commodities, whether by rail or by pipeline. International large-scale rail shipments of mineral commodities were confined chiefly to those

movements from Canada and Mexico to the United States and to transfers of mineral commodities within European countries south of the Baltic. Notable exceptions continued to be the shipment of large quantities of iron ore from Sweden to Narvik, Norway, for loading on vessels for export through that port, and to the flow of a variety of minerals from several southern African nations across the Republic of South Africa for export through that country's ports.

Major international pipeline movements of oil and natural gas in 1985, generally speaking, were confined to the same areas cited as centers of rail movement of mineral commodities. Noteworthy here, perhaps, was the continued operation of the pipelines for both oil and gas from the U.S.S.R. into the other centrally planned economy countries of Europe and on into some market economy countries of that continent. Pipeline movement of crude oil from the Persian Gulf fields to the eastern Mediterranean, and of natural gas from Iran to the U.S.S.R. remained impossible because of the political and military situation in that part of the world.

Information on rail and pipeline transport of mineral commodities within certain individual countries is provided in the appropriate country chapter.

PRICES

Comprehensive data on market prices for crude minerals and mineral products for the entire world are not available, and even the data that do exist are often not comparable between countries, particularly between market economy countries and centrally planned economy countries. However, those prices that are regularly published for selected commodities in major market areas can be regarded as indicative of general world price trends. Tables 13, 14, and 15 summarize prices for selected metals in the United States, the United Kingdom, and Canada, respectively, for 1981-85, inclusive, with monthly data provided for 1985. All three markets generally recorded price drops comparing 1985 annual averages with those for 1984 for most of the metals shown. For example, out of the eight metals listed for the United States, only aluminum did not register an actual current dollar price decline, remaining constant at \$0.81 per pound throughout 1985, just as it had during 1984, but when this is viewed against the small but nonetheless present inflation, there has been a reduction in the constant dollar inflation-adjusted price for this important material. The average price of copper in 1985 was fractionally above that of 1984, both in the United Kingdom and in Canada, but the increases were hardly sufficient to compensate for inflation, much less adequate to provide any increase in profit margin for producers. Nickel on the Canadian market showed no current dollar price increase, but as with the U.S. aluminum price, there was no adjustment for inflation. Other United Kingdom prices were down, except for tin, but in the case of this commodity, there were no prices quoted for the final 2 months, and had there been, they might well have dropped the 1985 average to a level below that of 1984.

Shifting to major industrial minerals, contract prices for sulfur generally were \$5.00 to \$10.00 higher per ton, on average,

in the second half of 1985 than in the first half, ranging from \$135 to \$140 for Canadian sulfur, f.o.b. Vancouver, to \$150 to \$155 for Polish sulfur, f.o.b. Gdansk, with U.S. sulfur, f.o.b. gulf coast ports, about equal to the Canadian material. In contrast, major fertilizer materials prices trended downward. Urea, with export prices in the range of \$165 to \$190 per ton at yearend 1984, fell to the levels of \$85 to \$110 per ton by yearend 1985, roughly paralleling the drop in ammonia export prices from \$165 to \$190 per ton at yearend 1984 to \$125 to \$150 per ton at yearend 1985. Potassium chloride's yearend 1984 prices of \$84 per ton held constant through June, and then declined, with a small upturn in August, to \$75 to \$76 per ton at yearend. Phosphatic materials fared slightly better. The export price for phosphoric acid, at about \$300 per ton at yearend 1984, dropped below \$250 per ton in August 1985, but recovered to \$300 per ton at yearend, while the triple superphosphate price, slightly under \$125 per ton at yearend 1984, dropped to \$115 per ton during the summer, but advanced to the range of \$130 to \$135 per ton by yearend 1985.

Comparison of the average per barrel prices for crude oils as of January 1, 1985, with those of January 10, 1986, as computed by the U.S. Department of Energy, shows a decline of \$0.67 per barrel for OPEC crudes from \$28.43 to \$27.76, and of \$2.28 per barrel for non-OPEC crudes from \$28.16 to \$25.88, producing a world average decline of \$1.31 per barrel, from \$28.33 to \$27.02. Moreover, these prices do not take into account spot prices, some of which reportedly ranged as low as \$18.75 per barrel. Comparison of 1985 prices for a number of specific grades of crude oil with those for 1984 show a general pattern of downturn, as could be expected from the glutted world markets; a few showed marginal increases, but even these gains were less than the annual inflation rate.

STATISTICAL SUMMARY OF WORLD PRODUCTION AND TRADE OF MAJOR MINERAL COMMODITIES

The final 24 tables of this chapter, tables 16-39, extend the statistical series on production that was started in the 1963 edition of the International Area Reports volume of

the Minerals Yearbook and was subsequently updated and expanded in the 1965 and 1976-84 editions. They are primarily a supplement to other statistical data within this

chapter but also serve as a summary of international production data for major mineral commodities covered in greater detail, on a commodity basis, in volume I of the 1985 Minerals Yearbook and on a country basis in volume III.

In this edition, the data presented in these tables, in most instances, correspond with the data in the individual commodity world production tables appearing in volume I and may differ somewhat from a total that might be obtained by adding figures presented for any single commodity in each of the country chapters of volume III. This apparent disparity results from problems of scheduling the compilation of tables in the numerous commodity and country chapters in the two volumes. In an effort to provide the user with the most up-to-date information possible, data received after completion of worldwide commodity production tables (volume I) have been included in many of the individual country production tables (volume III). Limitations of time, however,

have prevented the incorporation of these revisions in the abbreviated versions of the world commodity tables included here. Thus, a more precise figure for total world production of any commodity could be obtained by adding figures presented in the individual country chapters. For summary purposes, however, it is felt that tables 16-39 of this chapter are sufficiently correct without the inclusion of these generally minor revisions.

The series of data on world trade in major mineral commodities that appeared in earlier editions of this chapter (tables 57-69 in the 1976 edition) could not be included owing to scheduling problems.

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³Callot, F. Production et consommation mondiales de minerais en 1983. Annales des Mines, Nos. 7, 8, 9, July-Aug.-Sept. 1985, pp. 3-123.

⁴Table 1 contains 100 data lines, but 3 of these are totals of others; these total lines are not included in the total of 97 distinct commodities or forms of commodities counted here.

Table 2.—Geographic distribution of world crude mineral production value, by country

Country	Value of production ¹ (million 1983 U.S. dollars)			Country's share of total ² (percent)			Country's rank among world producers ³		
	1950	1978	1983	1950	1978	1983	1950	1978	1983
U.S.S.R.	11,829.5	145,493.1	221,272.7	11.43	19.96	23.78	2	1	1
United States (including Puerto Rico)	40,681.8	112,758.5	167,643.7	39.31	15.47	18.02	1	2	2
Saudi Arabia ⁴	1,391.2	59,956.1	57,125.7	1.34	8.22	6.14	13	3	3
China	1,161.1	46,230.0	53,280.2	1.12	6.34	5.73	16	4	4
United Kingdom	6,020.7	18,860.3	37,567.4	5.82	2.59	4.04	3	7	5
Mexico	1,408.3	11,256.5	31,875.4	1.36	1.54	3.43	12	18	6
Canada	2,807.1	22,482.4	28,762.3	2.71	3.08	3.09	6	6	7
Iran	1,637.8	38,207.1	25,788.2	1.58	5.24	2.77	10	5	8
Indonesia	731.3	13,797.2	17,410.8	.71	1.89	1.87	20	15	9
Venezuela	5,206.8	15,846.9	16,875.8	5.03	2.17	1.81	4	10	10
Australia	1,123.3	11,211.7	15,022.8	1.08	1.54	1.61	17	19	11
South Africa, Republic of	2,148.6	12,381.3	14,780.0	2.08	1.70	1.59	9	17	12
Algeria	85.4	10,400.2	14,741.5	.08	1.43	1.58	51	20	13
United Arab Emirates		13,874.2	13,709.8		1.90	1.47		14	14
Nigeria	76.0	15,165.0	13,656.8	.07	2.08	1.47	53	12	15
Libya		16,329.3	13,291.8		2.24	1.43		9	16
Germany, Federal Republic of	5,185.9	15,295.0	12,735.8	5.01	2.10	1.37	5	11	17
Iraq	393.8	18,367.7	12,564.1	.32	2.52	1.35	32	8	18
Kuwait ⁴	745.7	14,933.5	11,754.1	.72	2.05	1.26	19	13	19
Netherlands	428.0	9,814.5	10,514.3	.41	1.35	1.13	27	21	20
Norway	64.6	4,223.2	10,459.7	.06	.58	1.12	55	24	21
Poland	2,240.1	12,581.0	9,113.1	2.16	1.73	.98	8	16	22
India	1,322.3	3,558.2	8,986.0	1.28	.49	.97	15	29	23
Egypt	163.0	3,626.2	8,041.5	.16	.50	.86	45	28	24
Romania	324.8	4,540.7	7,459.0	.31	.62	.80	33	22	25
Brazil	174.2	3,528.1	7,243.8	.17	.48	.78	44	30	26
Argentina	258.1	3,694.8	6,616.0	.25	.51	.71	36	26	27
Malaysia	443.8	2,848.5	4,913.0	.43	.39	.53	26	31	28
German Democratic Republic	650.1	4,051.3	4,576.9	.63	.56	.49	22	25	29
Oman		2,305.8	4,444.3		.32	.48		36	30
Qatar	85.7	3,649.2	3,886.4	.08	.50	.42	50	27	31
Peru	363.9	2,750.3	3,625.1	.36	.38	.39	30	33	32
France	2,595.5	4,326.0	3,620.0	2.51	.59	.39	7	23	33
Chile	991.7	2,803.6	3,049.1	.96	.38	.33	18	32	34
Brunei	278.4	2,000.8	2,939.0	.27	.27	.32	35	38	35
Ecuador	37.9	1,432.6	2,441.6	.04	.20	.26	66	44	36
Spain	549.2	1,772.5	2,348.0	.53	.24	.25	24	41	37

See footnotes at end of table.

Table 2.—Geographic distribution of world crude mineral production value, by country
—Continued

Country	Value of production ¹ (million 1983 U.S. dollars)			Country's share of total ² (percent)			Country's rank among world producers ³		
	1950	1978	1983	1950	1978	1983	1950	1978	1983
Yugoslavia	305.3	1,795.7	2,262.9	0.30	0.25	0.24	34	40	38
Trinidad and Tobago	198.4	2,024.5	2,217.3	.19	.28	.24	40	37	39
Czechoslovakia	664.6	2,631.3	2,182.0	.64	.36	.23	21	35	40
Italy	236.7	1,365.7	2,029.5	.23	.19	.22	38	47	41
Angola	24.0	1,430.6	1,893.0	.02	.20	.20	73	45	42
Gabon	7.3	1,772.0	1,796.1	.01	.24	.19	87	42	43
Korea, North	42.1	2,684.3	1,773.1	.04	.37	.19	63	34	44
Hungary	139.3	1,274.5	1,670.9	.13	.17	.18	47	48	45
Syria	—	1,272.8	1,570.8	—	.17	.17	—	49	46
Japan	1,333.3	1,888.0	1,524.6	1.29	.26	.16	14	39	47
Colombia	407.1	1,378.5	1,318.4	.39	.19	.14	29	46	48
Zaire	567.6	1,449.8	1,301.3	.55	.20	.14	23	43	49
Tunisia	65.7	886.2	1,262.0	.06	.12	.14	54	56	50
Cameroon	(⁵)	79.6	1,218.4	(⁵)	.01	.13	(⁵)	97	51
Turkey	215.0	1,193.4	1,177.4	.21	.16	.13	39	51	52
Pakistan	24.3	477.1	1,138.9	.02	.07	.12	72	68	53
Korea, Republic of	32.2	1,026.4	994.7	.03	.14	.11	67	54	54
Philippines	100.0	789.1	956.6	.10	.11	.10	49	58	55
Greece	(⁵)	538.8	888.3	(⁵)	.07	.10	(⁵)	66	56
Congo	2.3	346.3	886.7	(⁵)	.05	.10	96	72	57
Namibia	150.9	972.3	876.7	.15	.13	.09	46	55	58
Bahrain	101.1	529.3	870.2	.10	.07	.09	48	67	59
Bolivia	361.1	1,052.0	840.9	.35	.14	.09	31	53	60
Zambia	504.2	1,195.6	788.1	.49	.16	.08	25	50	61
Morocco	248.0	71,099.8	735.5	.24	7.15	7.08	37	752	762
Bulgaria	23.5	641.1	685.8	.02	.09	.07	75	61	63
Austria	183.3	872.6	634.7	.18	.12	.07	42	57	64
Botswana	(⁵)	237.6	621.4	(⁵)	.03	.07	(⁵)	78	65
Sweden	420.4	674.4	601.3	.41	.09	.06	28	59	66
Thailand	84.1	654.8	508.0	.08	.09	.05	52	60	67
New Guinea	11.5	571.3	498.5	.01	.08	.05	81	64	68
New Zealand	43.1	269.5	494.6	.04	.04	.05	61	76	69
Denmark	9.2	69.8	479.5	.01	.01	.05	85	101	70
Other ⁴	3,429.7	7,506.5	7,576.3	3.33	1.03	.81	XX	XX	XX
Total ⁶	103,485.9	729,004.5	930,410.1	100.00	100.00	100.00	XX	XX	XX

XX Not applicable.

¹Values are as reported in source except that the value assigned therein to Puerto Rico has been added to that for the United States, and the values assigned therein for Abu Dhabi, Dubai, and Sharjah have been combined under the heading "United Arab Emirates."²Percentages are as reported in source except for inclusion of that for Puerto Rico with that for the United States and for the summation of the percentages for Abu Dhabi, Dubai, and Sharjah under the heading "United Arab Emirates." Some percentages differ slightly from percentages calculated from corresponding value data in this table because of rounding of value data.³Rankings are as reported in source except for the adjustments necessary to correspond with the grouping of Abu Dhabi, Dubai, and Sharjah under the heading "United Arab Emirates."⁴Includes allowance for production in the Kuwait-Saudi Arabia Partitioned Zone.⁵Not reported separately in source; included with "Other."⁶Less than 0.005 percent.⁷Includes former Spanish Sahara.⁸Values and percentages derived by difference between the sum of figures for individually listed countries above and totals reported in source; for this reason, percentages given may not be calculable from listed values.⁹Data may not add to totals shown because of independent rounding.

Source: Annales des Mines, July-Sept. 1985, pp. 22-23.

Table 3.—Commodity distribution of world crude mineral production value

Commodity	Value of production (million 1983 U.S. dollars)			Commodity's share of total (percent) ¹			Commodity's rank among listed com- modities		
	1950	1978	1983	1950	1978	1983	1950	1978	1983
Petroleum, crude	34,979.0	406,422.4	541,606.5	33.81	55.79	58.21	2	1	1
Gas, natural	1,879.0	81,263.1	149,451.0	1.82	11.15	16.06	6	3	2
Coal, anthracite and bituminous	39,129.1	118,506.3	105,514.0	37.82	16.27	11.34	1	2	3
Natural gas liquids	1,669.7	13,950.8	31,490.1	1.61	1.91	3.38	7	5	4
Gold	3,927.5	11,490.0	19,078.9	3.80	1.58	2.05	5	7	5
Iron ore	4,775.0	17,654.0	14,360.6	4.62	2.42	1.54	3	4	6
Coal, lignite	1,429.3	10,425.1	12,756.7	1.38	1.43	1.37	10	8	7
Copper	3,946.0	13,145.0	10,712.1	3.81	1.80	1.15	4	6	8
Silver	523.3	2,812.9	4,554.3	.51	.39	.49	15	18	9
Uranium	—	4,055.1	4,014.3	—	.56	.43	—	10	10
Phosphates	515.7	4,610.9	3,695.0	.50	.63	.40	16	9	11
Potash	623.9	3,796.0	2,989.7	.60	.52	.32	14	12	12
Salt	728.2	3,721.8	2,810.5	.70	.51	.30	13	13	13
Zinc	1,512.0	2,917.7	2,660.9	1.46	.40	.29	9	16	14
Sulfur	428.5	1,964.0	2,575.0	.41	.27	.28	17	21	15
Diamond	355.3	3,054.8	2,549.3	.34	.42	.27	19	14	16
Nickel	354.0	2,331.1	2,508.9	.34	.32	.27	20	20	17
Tin	1,287.7	3,822.5	2,131.1	1.24	.53	.22	11	11	18
Bauxite	208.9	2,015.2	1,846.4	.20	.28	.20	24	19	19
Platinum-group metals	130.5	1,779.5	1,708.1	.13	.24	.18	28	22	20
Asbestos	395.1	2,915.4	1,462.5	.38	.40	.16	18	17	21
Kaolin	231.2	1,238.8	1,271.0	.22	.17	.14	22	25	22
Lead	1,591.0	3,043.8	1,270.4	1.54	.42	.14	8	15	23
Manganese	788.7	1,369.6	771.1	.76	.19	.083	12	24	24
Sodium carbonate, natural	38.2	580.1	626.8	.037	.08	.067	41	31	25
Borates	65.6	685.7	608.7	.063	.094	.065	36	28	26
Pyrite	169.1	564.9	586.9	.16	.073	.063	26	32	27
Molybdenum	116.6	1,537.8	506.4	.11	.211	.054	31	23	28
Magnesite	67.6	600.9	471.9	.065	.082	.051	34	30	29
Talc and related materials	93.9	611.1	453.5	.091	.084	.049	32	29	30
Fluorspar	129.3	523.0	409.7	.13	.072	.044	29	33	31
Chromite	209.3	948.3	392.2	.20	.13	.042	23	27	32
Tungsten	180.2	1,198.2	363.3	.17	.164	.039	25	26	33
Bentonite	72.3	388.2	293.8	.07	.053	.032	33	36	34
Barite	66.8	345.3	246.0	.065	.047	.026	35	37	35
Vanadium	6.5	420.1	235.4	.006	.058	.025	48	35	36
Cobalt	52.9	428.7	197.9	.051	.059	.021	37	34	37
Feldspar	19.5	125.4	159.2	.019	.017	.017	44	41	38
Sodium sulfate, natural	31.0	116.5	157.1	.030	.016	.017	43	43	39
Ilmenite	46.2	181.6	156.2	.045	.025	.016	38	38	40
Mica	151.2	153.0	151.0	.146	.021	.016	27	40	41
Graphite	31.4	95.7	112.6	.030	.013	.012	42	45	42
Zircon	5.7	88.1	87.3	.006	.012	.009	49	46	43
Rutile	9.6	110.6	78.1	.009	.015	.008	46	44	44
Nitrates, natural only	256.6	65.8	69.7	.250	.009	.007	21	47	45
Antimony	123.4	164.0	62.3	.12	.023	.007	30	39	46
Mercury	43.8	37.9	56.4	.042	.005	.006	39	50	47
Asphalt, natural	39.8	53.6	55.7	.038	.007	.006	40	48	48
Columbite and tantalite	—	120.2	42.7	—	.016	.004	—	42	49
Kyanite and related materials	—	42.5	38.9	—	.006	.004	—	49	50
Cryolite	11.1	3.3	2.0	.011	(²)	.002	45	51	51
Beryl	7.6	NA	NA	.007	NA	NA	47	NA	NA
Total ³	103,453.8	728,496.3	930,410.1	100.000	100.000	100.000	XX	XX	XX

NA Not available. XX Not applicable.

¹Percentages as reported in source; some differ slightly from percentages calculated from corresponding value data in this table because of rounding of value data.²Less than 0.001 percent.³Data may not add to totals shown because of independent rounding.

Source: Annales des Mines, July-Sept. 1985, p. 10.

Table 4.—Value of world export trade in major mineral commodity groups¹

(Million U.S. dollars)

Commodity group	1980 ²	1981 ²	1982 ²	1983 ²	1984
Metals:					
All ores, concentrates, scrap	31,804	28,187	24,220	23,176	25,285
Iron and steel	75,667	73,419	68,461	61,040	65,869
Nonferrous metals	49,907	36,279	31,890	36,869	36,823
Total	157,378	137,885	124,571	121,085	127,977
Nonmetals, crude only	11,748	10,956	9,919	9,326	9,889
Mineral fuels	481,725	474,266	430,963	385,096	377,487
Grand total	650,851	623,107	565,453	515,507	515,353
All commodities	2,001,958	1,965,890	1,848,326	1,813,478	1,907,244

¹Revised.

²Data presented are for selected major commodity groups of the Standard International Trade Classification, Revision 2 (SITC-R2) and as such exclude some mineral commodities classified in that data array together with other (nonmineral) commodities. SITC-R2 categories included are as follows: All ores, concentrates, and scrap—Div. 28; iron and steel—Div. 67; nonferrous metals—Div. 68; nonmetals (crude only)—Div. 27; and mineral fuels—Div. 3. Major items not included are the metals, metalloids, and metal oxides of Group 513; mineral tar and other coal, petroleum, and gas-derived crude chemicals of Div. 52; manufactured fertilizers of Div. 56; and nonmetallic mineral manufactures of Groups 661, 662, 663, and 667. Data include special category exports, ship stores and bunkers, and other exports of minor importance, and exclude the intertrade of the centrally planned economy countries of Asia and trade between the Federal Republic of Germany and the German Democratic Republic.

Source: United Nations. Monthly Bulletin of Statistics. V. 40, No. 5, May 1986, pp. xxxiv-lxi.

Table 5.—Distribution of value of world export trade in major mineral commodity groups¹

(Percent)

Commodity group	1980 ²	1981 ²	1982 ²	1983 ²	1984
Metals:					
All ores, concentrates, scrap	4.9	4.5	4.3	4.5	4.9
Iron and steel	11.6	11.8	12.1	11.8	12.8
Nonferrous metals	7.7	5.8	5.6	7.2	7.1
Total	24.2	22.1	22.0	23.5	24.8
Nonmetals, crude only	1.8	1.8	1.8	1.8	1.9
Mineral fuels	74.0	76.1	76.2	74.7	73.2

¹Revised.²For detailed definition of groups, see footnote 1, table 4.**Table 6.—Growth of value of world export trade in major mineral commodity groups¹**

(Percent change from that of previous year)

Commodity group	1980 ²	1981 ²	1982 ²	1983 ²	1984
Metals:					
All ores, concentrates, scrap	+35.0	-11.4	-14.1	-4.3	+9.1
Iron and steel	+7.5	-3.0	-6.8	-10.8	+7.9
Nonferrous metals	+33.9	-27.3	-12.1	+15.6	-1
All metals	+20.1	-12.4	-9.7	-2.8	+5.7
Nonmetals, crude only	+22.4	-6.7	-9.5	-6.0	+6.0
Mineral fuels	+44.6	-1.5	-9.1	-10.6	-2.0
All major mineral commodity groups	+37.4	-4.3	-9.3	-8.8	0.0
All commodities	+22.3	-1.8	-6.0	-1.9	+5.2

¹Revised.²For detailed definition of groups, see footnote 1, table 4.

Table 7.—World consumption of selected mineral commodities

(Thousand metric tons unless otherwise specified)

Commodity	1981	1982	1983	1984	1985 ^P
Ferrous metals: World:					
Iron ore, gross weight ^e million metric tons	862	776	780	870	895
Iron and steel scrap, gross weight do	^r 318	^r 288	^r 297	313	^e 330
Nonferrous metals:					
Market economy countries:					
Aluminum, refined	11,196	10,803	^r 12,008	12,485	12,744
Cadmium	13	13	14	14	14
Copper, refined	^r 7,252	^r 6,771	^r 6,821	7,551	7,223
Lead, refined	^r 3,803	^r 3,782	^r 3,783	3,936	3,892
Magnesium, primary	179	166	^r 177	193	198
Nickel ¹	476	456	^r 486	578	537
Tin, refined	172	159	160	172	167
Zinc, slab	4,274	^r 4,166	^r 4,527	4,645	4,578
Centrally planned economy countries:					
Aluminum, refined	3,283	3,308	^r 3,317	3,323	3,457
Cadmium	4	4	4	4	5
Copper, refined	2,273	^r 2,271	^r 2,262	2,279	2,318
Lead, refined	^r 1,456	^r 1,468	^r 1,457	1,442	1,474
Magnesium, primary	81	83	88	94	102
Nickel ²	186	192	^r 202	207	215
Tin, refined	^r 51	^r 54	^r 52	57	57
Zinc, slab	1,729	1,775	1,792	1,850	1,826
World total:					
Aluminum, refined	14,479	14,111	^r 15,325	15,808	16,201
Cadmium	17	17	18	18	19
Copper, refined	^r 9,525	^r 9,042	^r 9,083	9,830	9,541
Lead, refined	^r 5,259	^r 5,250	^r 5,240	5,378	5,366
Magnesium, primary	260	249	265	287	300
Nickel ²	662	648	^r 688	785	752
Tin, refined	^r 223	^r 213	^r 212	229	224
Zinc, slab	6,003	^r 5,941	^r 6,319	6,495	6,404
Industrial minerals: World:					
Fertilizers:					
Nitrogenous ³					
million metric tons of contained N	60,551	60,498	^r 61,079	66,961	70,136
Phosphatic ³ million metric tons of contained P ₂ O ₅	31,572	30,844	^r 30,631	32,864	34,078
Potassic ³ million metric tons of K ₂ O equivalent	24,325	23,673	^r 22,725	25,408	25,857
Sulfur million metric tons of elemental sulfur equivalent	54,668	^r 51,282	^r 54,113	57,871	^e 58,000
Mineral fuels: World:					
Solid fuels million metric tons of standard coal equivalent	^r 2,649	^r 2,688	^r 2,762	2,863	2,998
Liquid fuels do	^r 3,651	^r 3,581	^r 3,558	3,647	3,629
Natural gas do	^r 1,838	^r 1,825	^r 1,869	1,978	2,043
Hydro, geothermal, nuclear electricity do	320	333	^r 360	387	412
Total⁴ do	^r 8,457	^r 8,428	^r 8,550	8,876	9,082

^eEstimated. ^PPreliminary. ^rRevised.¹Primary and secondary combined.²Nickel content of refined nickel, ferronickel, and nickel oxide.³Data are for years ending June 30 of that stated.⁴Data may not add to totals shown because of independent rounding.

Sources: Based on data provided by the World Bureau of Metal Statistics (market economy countries, nonferrous metals except magnesium); Metallgesellschaft AG (centrally planned economy countries, nonferrous metals and all magnesium consumption); British Sulphur Corp. Ltd. (nonmetals); and 1984 United Nations Energy Statistics Yearbook (all mineral fuels for 1981-84). Data on iron ore and iron and steel scrap for all years and on sulfur and mineral fuels for 1985 compiled from a variety of sources by the U.S. Bureau of Mines.

Table 8.—Annual investment expenditure in the steel industry for selected countries

(Million dollars)

Country or country group	1980	1981	1982	1983	1984
EEC ¹ -----	3,111	2,754	2,427	^r 2,103	1,999
EFTA ² -----	840	537	291	^r 198	243
Other countries: ³					
Australia -----	220	355	217	64	102
Canada -----	487	698	483	^r 156	170
Japan -----	2,865	3,610	3,720	^r 3,744	3,095
Spain -----	237	183	204	131	290
Turkey -----	NA	NA	58	^r 232	262
United States -----	3,400	3,365	4,203	^r 3,137	2,432
Total -----	11,160	11,502	11,603	^r 9,765	8,593

^rRevised. NA Not available.

¹Source reports that values for European Economic Community (EEC) countries are in terms of "million units of account." For this tabulation the units in the source have been converted to U.S. dollars using the following factors supplied by the International Monetary Fund: U.S. dollars per European units of account (ECU) at the end of the period: 1980—1.3096; 1981—1.0852; 1982—0.9677; 1983—0.8274; and 1984—0.7089.

²European Free Trade Association (EFTA) figures exclude data for Switzerland.

³Data for New Zealand have not been available since 1979.

Sources: Organization for Economic Cooperation and Development. The Iron and Steel Industry in 1981. Paris, 1983, p. 32; The Iron and Steel Industry in 1982. Paris, 1984, p. 32; The Iron and Steel Industry in 1983. Paris, 1985, p. 32; The Iron and Steel Industry in 1984. Paris, 1986, p. 32.

Table 9.—Salient statistics on U.S. foreign investment in mineral industry activities¹

(Million dollars)

	1983	1984	1985
Direct foreign investment:			
Mining, smelting, refining -----	7,775	7,580	7,481
Petroleum -----	57,574	59,089	58,347
Reinvested earnings of foreign affiliates:			
Smelting and fabricated metals ² -----	-47	6	303
Petroleum -----	1,567	3,429	2,434
Equity and intercompany account flows:			
Smelting and fabricated metals ² -----	-202	70	107
Petroleum -----	-2,265	-3,425	-4,068
Income:			
Mining, smelting, refining -----	61	282	397
Petroleum -----	9,441	9,729	9,204

¹All data have been revised to reflect the results of the 1982 benchmark survey by the U.S. Department of Commerce of U.S. direct investments abroad.

²Data on mining no longer available.

Source: U.S. Department of Commerce. Survey of Current Business, v. 65, No. 8, Aug. 1985; and v. 66, No. 8, Aug. 1986.

Table 10.—World merchant fleet distribution, by type¹

	1981	1982	1983	1984	1985
Number of vessels:					
Bulk carriers.....	4,987	5,215	5,384	5,560	5,787
Freighters ²	14,201	14,280	14,268	14,019	13,937
Tankers.....	5,517	5,583	5,548	5,482	5,456
Other ³	405	404	379	363	375
Total.....	25,110	25,482	25,579	25,424	25,555
Gross tonnage: ⁴					
Bulk carriers..... thousand long tons.....	111,820	119,341	124,000	129,274	135,366
Freighters ² do.....	92,142	93,323	94,222	94,549	97,284
Tankers..... do.....	184,551	180,082	173,335	164,451	158,508
Other ³ do.....	3,867	3,898	3,768	3,705	3,898
Total..... do.....	392,380	396,644	395,325	391,979	395,056
Deadweight tonnage: ⁴					
Bulk carriers..... do.....	194,368	208,153	216,468	225,496	235,833
Freighters ² do.....	123,119	124,994	125,646	124,758	126,542
Tankers..... do.....	346,439	336,142	322,617	304,589	292,345
Other ³ do.....	1,827	1,805	1,673	1,579	1,604
Total..... do.....	665,753	671,094	666,404	656,422	⁵ 656,323

¹Maritime Administration classification. Tankers include whaling tankers. Vessels shown here as "Other" include combination passenger and cargo and combination passenger and refrigerated cargo. Data are as of Dec. 31 of year indicated.

²Includes refrigerated freighters.

³Excludes refrigerated freighters.

⁴Erroneously labeled as thousand metric tons in the 1984 Minerals Yearbook.

⁵Data do not add to total shown because of independent rounding.

Source: U.S. Department of Transportation, Maritime Administration. Merchant Fleets of the World. Annual issues for 1981-84 and unpublished data supplied by the same agency for 1985.

Table 11.—Movement of mineral commodities through the Panama Canal

(Thousand metric tons)

	1982			1983			1984		
	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total
METALS									
Ore and concentrate:									
Bauxite and alumina.....	372	183	555	381	109	490	461	906	1,367
Chromite.....	4	51	55	--	11	11	4	72	76
Copper.....	29	742	771	1	421	422	--	396	396
Iron.....	24	266	290	70	55	125	11	74	85
Lead.....	36	151	187	18	126	144	11	170	181
Manganese.....	187	69	256	135	89	224	80	92	172
Tin.....	--	44	44	--	31	31	--	33	33
Zinc.....	38	564	602	^r 99	476	^r 575	133	581	714
Other and unspecified	64	2,133	2,197	^r 58	1,666	^r 1,724	200	1,564	1,764
Subtotal.....	754	4,203	4,957	762	2,984	3,746	900	3,888	4,788
Ingots and semimanufactures:									
Aluminum.....	317	65	382	403	58	461	317	54	371
Copper.....	4	959	963	43	1,181	1,224	34	899	933
Iron and steel ^{1 2}	2,953	5,366	8,319	3,776	3,683	7,459	4,223	5,522	9,745
Lead.....	18	98	116	14	131	145	14	86	100
Tin ¹	33	29	62	15	21	36	12	19	31
Zinc.....	6	212	218	13	131	144	29	106	135
Other.....	43	96	139	77	81	158	36	47	83
Subtotal.....	3,374	6,825	10,199	4,341	5,286	9,627	4,665	6,733	11,398
Total.....	4,128	11,028	15,156	5,103	8,270	13,373	5,565	10,621	16,186
INDUSTRIAL MINERALS									
Borax.....	2	433	435	12	^r 397	^r 409	5	421	426
Cement.....	61	7	68	65	7	72	177	5	182

See footnotes at end of table.

Table 11.—Movement of mineral commodities through the Panama Canal—Continued
(Thousand metric tons)

	1982			1983			1984		
	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total
INDUSTRIAL MINERALS—Continued									
Clays, fire and china ----	452	9	461	386	28	414	363	25	388
Fertilizer materials ----	7,013	1,578	8,591	8,078	1,491	9,569	8,755	1,283	10,038
Salt ----	120	594	714	124	^r 586	^r 710	78	707	785
Sulfur ----	2	2,616	2,618	11	1,976	1,987	13	2,470	2,483
Other ³ ----	195	276	471	146	166	312	223	164	387
Total ----	7,845	5,513	13,358	8,822	^r 4,651	^r 13,473	9,614	5,075	14,689
MINERAL FUELS									
Carbon black ----	6	^r 81	^r 87	4	1	5	4	1	5
Coal and coke ----	21,590	1,301	22,891	^r 9,308	1,591	^r 10,899	8,245	1,869	10,114
Petroleum:									
Crude ----	4,481	40,762	45,243	4,620	14,350	18,970	3,961	10,432	14,393
Refined ----	9,438	5,295	14,733	9,341	6,168	15,509	8,812	8,014	16,826
Subtotal ----	13,919	46,057	59,976	13,961	20,518	34,479	12,773	18,446	31,219
Total ----	35,515	^r 47,439	^r 82,954	^r 23,273	22,110	^r 45,383	21,022	20,316	41,338
Grand total ----	47,488	^r 63,980	^r 111,468	^r 37,198	^r 35,031	^r 72,229	36,201	36,012	72,213

^rRevised.¹Tinplate is included under "Tin" rather than under "Iron and steel" in source publication.²Includes a category identified simply as "Scrap" in source publication, which may include scrap other than iron and steel scrap.³Comprises asbestos, brick and tile, clinkers, diatomite, dross, marble and other stone, slag, and soda and other sodium compounds.

Source: Panama Canal Commission Annual Report 1983 and 1984.

Table 12.—Movement of mineral commodities through the Suez Canal

(Thousand metric tons)

	1983			1984			1985		
	North-bound	South-bound	Total	North-bound	South-bound	Total	North-bound	South-bound	Total
METALS									
Aluminum ore (bauxite) ----	1,352	(¹)	1,352	1,849	(¹)	1,849	1,630	(¹)	1,630
Antimony ----	118	(¹)	118	15	(¹)	15	--	(¹)	(¹)
Chromium ore, concentrate, metal --	61	(¹)	61	95	(¹)	95	168	(¹)	168
Copper ore, concentrate, metal ----	201	(¹)	201	419	(¹)	419	309	(¹)	309
Iron and steel:									
Iron ore ----	5,319	(¹)	5,319	6,953	(¹)	6,953	6,325	(¹)	6,325
Scrap ----	7	NA	7	9	--	9	4	2	6
Pig iron ----	(²)	1,087	1,087	(²)	925	925	(²)	1,216	1,216
Unwrought ----	(²)	3,404	3,404	(²)	2,170	2,170	(²)	2,576	2,576
Plates and sheets ----	(²)	1,359	1,359	(²)	1,170	1,170	(²)	1,125	1,125
Lead ore, concentrate, metal ----	121	(¹)	121	448	(¹)	448	367	(¹)	367
Manganese ore, concentrate, metal --	544	(¹)	544	684	(¹)	684	801	(¹)	801
Tin ore, concentrate, metal ----	28	(¹)	28	30	(¹)	30	92	(¹)	92
Titanium ore (ilmenite and rutile) --	447	(¹)	447	627	(¹)	627	358	(¹)	358
Tungsten ³ ----	12	(¹)	12	3	(¹)	3	--	(¹)	(¹)
Zinc ore, concentrate, metal ----	149	(¹)	149	322	(¹)	322	445	(¹)	445
Other and unspecified:									
Ores ----	792	788	1,580	771	827	1,598	777	1,240	2,017
Metals ----	1,922	4,563	6,485	2,063	4,275	6,338	2,069	4,883	6,952
INDUSTRIAL MINERALS									
Cement ----	38	13,180	13,218	2	11,182	11,184	2	5,545	5,547
Fertilizer materials:									
Nitrogenous:									
Urea ----	(⁴)	3,093	3,093	(⁴)	4,744	4,744	(⁴)	3,388	3,388
Ammonium nitrate ----	(⁴)	305	305	(⁴)	252	252	(⁴)	214	214

See footnotes at end of table.

Table 12.—Movement of mineral commodities through the Suez Canal —Continued

(Thousand metric tons)

	1983			1984			1985		
	North-bound	South-bound	Total	North-bound	South-bound	Total	North-bound	South-bound	Total
INDUSTRIAL MINERALS —									
Continued									
Fertilizer materials —Continued									
Nitrogenous —Continued									
Ammonium sulfate -----	(⁴)	359	359	(⁴)	305	305	(⁴)	187	187
Phosphatic -----	(⁴)	2,812	2,812	(⁴)	3,433	3,433	(⁴)	3,564	3,564
Potassic -----	(⁴)	1,447	1,447	(⁴)	1,594	1,594	(⁴)	1,663	1,663
Other and unspecified -----	2,223	3,531	5,754	2,542	4,058	6,600	2,959	3,831	6,790
Total -----	2,223	11,547	13,770	2,542	^r 14,386	^r 16,928	2,959	12,847	15,806
Salt -----	---	29	29	---	30	30	---	17	17
Minerals and rocks -----	588	1,002	1,590	815	857	1,672	707	601	1,308
MINERAL FUELS									
Coal and coke -----	4,251	399	4,650	7,315	307	7,622	8,172	264	8,436
Petroleum: -----	63,753	2,831	66,584	64,248	2,022	66,270	54,782	4,125	58,907
Crude -----									
Refinery products: -----									
Gasoline -----	184	1,156	1,340	351	841	1,192	1,397	565	1,962
Naphtha -----	(⁵)	(⁵)	(⁵)	2,654	(⁶)	2,654	2,187	161	2,348
Kerosene -----	278	3,313	3,591	111	2,914	3,025	131	2,932	3,063
Distillate fuel oil -----	1,784	5,323	7,107	3,181	3,031	6,212	4,348	1,938	6,286
Residual fuel oil -----	7,975	1,874	9,849	11,425	582	12,007	14,594	1,081	15,675
Lubricating oil -----	(⁵)	216	216	(⁵)	233	233	(⁵)	224	224
Asphalt -----	(⁵)	2	2	NA	NA	NA	NA	NA	NA
Petroleum residues -----	17	(⁵)	17	12	(⁵)	12	54	(⁵)	54
Other and unspecified -----	7,249	2,513	9,762	4,658	1,666	6,324	4,353	1,460	5,813
Total mineral commodities -----	99,413	^r 54,586	^r 153,999	111,602	^r 47,418	^r 159,020	107,031	42,802	149,833
All goods -----	141,002	115,703	256,705	154,237	109,491	263,728	151,901	105,695	257,596

^rRevised. NA Not available.¹Included under "Other and unspecified: Ores."²Included under "Other and unspecified: Metals."³Reported simply as "Tungsten," but believed to consist mainly of tungsten concentrates, with a small amount of metal included.⁴Included under "Fertilizer materials: Other and unspecified."⁵Included under "Petroleum: Other and unspecified."⁶Revised to zero.

Sources: 1983 and 1984: Suez Canal Authority Yearly Report 1984; 1985: Suez Canal Report, Dec. 1985, pp. 53-67.

Table 13.—Nonferrous metal prices in the United States

(Average cents per pound unless otherwise specified)

	Year and month	Aluminum ¹	Copper ²	Lead ³	Zinc ⁴	Tin ⁵	Silver ⁶	Cadmium ⁷	Cobalt ⁸
1981	January	76,000	83,744	36,531	44,555	6,554	10,519	1,870	(⁹)
1982	February	76,000	72,909	25,542	38,473	5,869	7,947	1,113	12.50
1983	March	77,687	77,861	21,677	41,386	6,013	11,441	1,129	12.50
1984	April	81,000	66,757	25,548	43,601	5,680	8,140	1,693	12.43
1985:	May	81,000	68,918	19,083	43,732	5,598	6,280	1,400	11.70
	June	81,000	65,694	19,053	43,732	5,598	6,172	1,400	11.70
	July	81,000	65,373	18,884	41,440	5,810	6,104	1,097	11.70
	August	81,000	64,947	19,099	39,844	5,801	6,247	1,000	11.70
	September	81,000	64,316	19,199	37,858	5,585	6,054	1,000	11.70
	October	81,000	65,280	18,928	37,758	5,382	6,188	1,000	11.70
	November	81,000	64,892	19,053	33,369	4,492	6,134	1,000	11.70
	December	81,000	66,626	18,974	33,615	4,119	5,886	1,000	11.70
	Average	81,000	65,566	19,067	40,366	5,259	6,142	1,208	11.70

¹U.S. list price, North American producer.²Electrolytic, f.o.b. refinery.³Refined lead, nationwide.⁴Prime Western, f.o.b. East St. Louis.⁵U.S. dollars per pound, New York dealer.⁶U.S. dollars per troy ounce, 0.999 fine, New York.⁷U.S. dollars per pound, producer.⁸U.S. dollars per pound, shot-cathode, 250-kilogram lots.⁹Price was \$25 in Jan.-Feb. 1981; \$20 in Mar.-Aug. 1981, inclusive; and suspended from Sept. 1981 through Jan. 1982, inclusive.

Source: American Bureau of Metal Statistics Inc.

Table 14.—Nonferrous metal prices in the United Kingdom¹

(Average U.S. cents per pound unless otherwise specified)

Year and month	Aluminum ²	Copper ³	Gold ⁴	Lead ⁵	Silver ⁶	Tin ⁷	Zinc ⁸
1981 -----	57.274	79.488	459.715	33.296	10.524	6.500	38.932
1982 -----	44.966	67.192	375.792	24.656	7.920	5.810	33.734
1983 -----	65.342	72.153	424.180	19.273	11.454	5.913	34.727
1984 -----	56.526	62.562	360.438	20.117	8.140	5.566	40.459
1985:							
January -----	48.778	61.650	302.791	19.029	6.086	5.030	39.198
February -----	49.814	62.980	299.100	16.689	6.079	4.971	40.141
March -----	49.684	63.046	303.943	15.951	5.953	5.089	41.701
April -----	50.180	63.120	325.273	17.650	6.451	5.357	42.138
May -----	50.132	69.426	316.367	17.037	6.259	5.403	39.871
June -----	46.822	64.972	316.490	17.638	6.166	5.623	36.558
July -----	45.884	66.887	317.217	18.267	6.084	5.791	34.698
August -----	46.236	64.420	329.786	18.743	6.250	5.738	33.294
September -----	44.685	61.981	323.350	18.147	6.063	5.592	31.239
October -----	44.019	62.810	325.843	17.828	6.181	5.621	28.624
November -----	43.108	62.119	325.295	17.856	6.124	NA	27.061
December -----	47.135	63.088	321.719	17.669	5.892	NA	31.049
Average -----	47.850	64.904	317.265	17.842	6.132	5.567	36.233

NA Not available.

¹London Metal Exchange.²Unalloyed ingot, 99.5%.³Electrolytic wirebars, monthly average settlement price.⁴U.S. dollars per troy ounce, final price.⁵Refined lead, monthly average cash price.⁶U.S. dollars per troy ounce, 0.999 fine, spot price.⁷U.S. dollars per pound, Straits tin.⁸Monthly average cash price: 1981-Aug. 1984 inclusive, slab; Sept. 1984-Dec. 1985, high grade.

Source: American Bureau of Metal Statistics Inc.

Table 15.—Nonferrous metal prices in Canada

(Average U.S. cents per pound unless otherwise specified)

Year and month	Copper ¹	Lead ²	Nickel ³	Silver ⁴	Zinc ⁵
1981 -----	83.973	37.183	3.429	10.528	44.778
1982 -----	72.395	26.279	3.200	7.951	39.437
1983 -----	75.936	21.929	3.200	11.458	42.329
1984 -----	63.365	25.805	3.200	⁷ 8.140	49.006
1985:					
January -----	60.620	20.015	3.200	6.102	43.978
February -----	62.920	18.897	3.200	6.066	43.044
March -----	61.940	17.522	3.200	6.012	44.566
April -----	66.530	20.291	3.200	6.458	46.859
May -----	68.470	19.991	3.200	6.279	46.525
June -----	64.980	19.231	3.200	6.174	45.774
July -----	65.610	19.222	3.200	6.108	42.091
August -----	64.380	19.293	3.200	6.255	40.884
September -----	62.780	19.448	3.200	6.059	39.736
October -----	63.520	19.024	3.200	6.191	38.048
November -----	63.230	18.888	3.200	6.137	34.871
December -----	63.870	18.633	3.200	5.897	34.399
Average -----	64.071	19.205	3.200	6.145	41.731

¹Revised.²For 1981-82, Canadian domestic producer delivered price for cathode; 1983-85, Hudson Bay Mining and Smelting Co. Ltd. delivered price for cathode.³Producers' price, carload quantities, pig lead, Cominco Ltd.⁴Canadian producer price, U.S. dollars per pound.⁵U.S. dollars per troy ounce.⁶Producers' price, carload quantities, regular high grade, Cominco Ltd.

Source: American Bureau of Metal Statistics Inc.

Table 16.—Leading world producers of bauxite¹

(Thousand metric tons, gross weight)

Country	1981	1982	1983	1984 ^P	1985 ^e
Australia	25,441	23,625	24,372	32,182	32,400
Guinea ^a	11,112	11,827	12,421	² 13,160	13,100
Brazil	5,770	6,289	7,199	6,433	6,650
Jamaica	11,682	8,361	7,683	8,734	6,239
U.S.S.R. ^{a, 3}	6,180	¹ 6,182	6,185	6,185	6,185
Yugoslavia	3,249	3,668	3,500	3,347	² 3,250
Suriname	¹ 4,006	¹ 4,205	3,400	3,454	3,000
Hungary	2,914	2,627	2,917	2,994	² 2,815
Greece	3,216	2,353	2,455	2,296	2,500
India	1,923	1,854	1,923	1,994	² 2,038
Guyana	1,681	1,783	1,087	1,333	1,675
China ^a	1,500	1,500	1,600	1,600	1,650
France	1,827	1,662	1,663	1,607	² 1,484
Total	¹ 80,501	¹ 76,436	76,405	85,319	82,986
Other	¹ 6,427	¹ 4,464	3,824	4,439	3,732
Grand total	¹ 86,928	¹ 80,900	80,229	89,758	86,718

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available as of July 8, 1986.²Reported figure.³Includes bauxite equivalent of nepheline syenite concentrates and alunite ore (produced in the U.S.S.R. only).Table 17.—Leading world producers of aluminum¹

(Thousand metric tons)

Country	1981	1982	1983	1984 ^P	1985 ^e
United States	4,489	3,274	3,353	4,099	² 3,500
U.S.S.R. ^a	1,800	1,875	2,000	2,100	2,200
Canada	1,116	1,065	1,091	1,227	² 1,282
Australia	379	381	478	758	² 851
Germany, Federal Republic of	729	723	743	777	745
Norway	¹ 634	¹ 638	715	761	² 724
Brazil	256	299	401	455	540
China ^a	¹ 350	380	¹ 400	¹ 400	410
Venezuela	314	274	335	386	396
Spain	397	367	358	381	² 370
France	436	390	361	342	² 293
United Kingdom	339	241	252	288	² 275
Yugoslavia	173	¹ 220	258	268	270
India	213	217	204	269	268
Netherlands	262	251	235	249	253
Italy	274	233	196	230	² 245
New Zealand	154	¹ 163	219	243	240
Japan	771	351	256	287	227
Romania	¹ 242	208	223	215	220
Total	¹ 13,328	¹ 11,550	12,078	13,735	13,309
Other	¹ 1,751	¹ 1,858	1,832	1,929	1,980
Grand total	¹ 15,079	¹ 13,408	13,910	15,664	15,289

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through June 3, 1986.²Reported figure.

Table 18.—Leading world producers of chromite¹

(Thousand metric tons, gross weight)

Country	1981	1982	1983	1984 ^P	1985 ^Q
South Africa, Republic of	2,870	2,164	2,232	3,006	² 3,340
U.S.S.R. ^Q	2,900	2,940	2,940	² 2,940	2,940
Albania ^Q	¹ 710	¹ 675	¹ 685	¹ 720	825
India	335	339	422	423	² 553
Zimbabwe	536	432	420	477	500
Turkey	¹ 401	¹ 452	346	487	450
Finland	412	345	245	446	450
Brazil	¹ 236	276	155	256	275
Philippines	439	322	267	259	² 258
Total	¹ 8,839	¹ 7,945	7,712	9,014	9,591
Other	¹ 249	¹ 243	298	341	344
Grand total	¹ 9,088	¹ 8,188	8,010	9,355	9,935

^QEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through July 1, 1986.²Reported figure.Table 19.—Leading world producers of mine copper¹

(Thousand metric tons, Cu content of ore)

Country	1981	1982	1983	1984 ^P	1985 ^Q
Chile ²	1,081	1,242	1,257	1,291	³ 1,356
United States ²	1,538	1,147	1,038	1,103	³ 1,106
Canada ²	691	612	653	713	724
U.S.S.R. ^{Q, 2}	570	560	570	590	600
Zaire	555	519	536	520	560
Zambia	588	568	574	541	483
Poland	¹ 295	¹ 376	402	431	431
Peru ²	342	357	322	375	³ 397
Mexico	233	229	196	304	290
Australia	231	245	262	236	258
Philippines	302	292	271	233	³ 226
South Africa, Republic of	¹ 199	189	205	198	² 202
China ^Q	170	175	175	180	185
Papua New Guinea	165	170	202	164	³ 175
Total	¹ 6,960	¹ 6,681	6,663	6,879	6,993
Other	¹ 817	¹ 938	1,049	1,116	1,121
Grand total	¹ 7,777	¹ 7,619	7,712	7,995	8,114

^QEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through July 8, 1986.²Recoverable.³Reported figure.

Table 20.—Leading world producers of gold¹

(Thousand troy ounces)

Country	1981	1982	1983	1984 ^P	1985 ^e
South Africa, Republic of	21,121	21,355	21,847	21,907	² 21,566
U.S.S.R. ^e	8,425	8,550	8,600	8,650	8,700
Canada	1,673	2,081	2,363	^r 2,638	2,747
United States	1,379	1,466	2,003	2,085	² 2,475
Brazil ^e	1,200	1,500	1,750	1,750	2,000
China ^e	1,700	1,800	1,850	1,900	1,950
Australia	591	867	984	1,257	² 1,833
Colombia	529	473	439	800	1,150
Papua New Guinea	540	^r 589	579	^e 835	1,050
Philippines	^r 758	834	817	787	² 810
Chile	400	544	571	541	² 554
Zimbabwe	371	426	453	478	480
Total	^r 38,687	^r 40,485	42,256	43,628	45,315
Other	^r 2,564	^r 2,642	2,740	2,780	2,902
Grand total	^r 41,251	^r 43,127	44,996	46,408	48,217

^eEstimated. ^PPreliminary. ^rRevised.¹Table includes data available through June 10, 1986.²Reported figure.Table 21.—Leading world producers of iron ore, iron ore concentrates, and iron ore agglomerates¹

(Thousand metric tons, gross weight)

Country	1981	1982	1983	1984 ^P	1985 ^e
U.S.S.R.	242,417	244,411	245,200	247,104	248,000
Brazil	99,499	^r 93,158	88,716	^r 112,057	120,000
Australia	84,661	87,694	71,038	88,969	100,000
China ^e	66,000	69,000	71,000	75,000	80,000
United States	74,348	36,002	38,165	52,092	² 49,533
India	41,351	40,902	^e 38,800	41,026	² 44,546
Canada	51,985	35,592	33,495	41,065	39,889
South Africa, Republic of	28,319	24,554	16,605	24,647	24,393
Sweden	23,225	16,143	13,212	18,123	20,454
Venezuela	15,531	11,200	9,715	13,054	15,480
Liberia	19,704	18,165	14,937	15,100	15,300
France	21,598	19,391	15,930	14,839	² 14,681
Mauritania	8,704	8,255	7,385	9,527	10,000
Korea, North ^e	8,000	8,000	8,000	8,000	8,000
Mexico	^r 8,711	8,155	8,040	8,317	7,800
Chile	^r 8,514	^r 6,470	5,974	7,116	² 6,510
Spain	8,565	^r 8,370	7,449	7,961	² 6,452
Yugoslavia	4,794	5,106	5,018	5,321	² 5,478
Total	^r 815,926	^r 740,568	698,679	789,318	816,516
Other	^r 42,236	^r 39,770	39,379	41,230	42,301
Grand total	^r 858,162	^r 780,338	738,058	830,548	858,817

^eEstimated. ^PPreliminary. ^rRevised.¹Table includes data available through July 8, 1986.²Reported figure.

Table 22.—Leading world producers of crude steel¹

(Thousand metric tons)

Country	1981	1982	1983	1984 ^b	1985 ^c
U.S.S.R. -----	148,445	147,165	152,514	154,238	155,000
Japan -----	101,676	99,548	97,179	105,586	² 105,281
United States -----	109,613	67,655	76,762	83,940	² 80,067
China -----	35,600	37,160	39,950	43,370	46,700
Germany, Federal Republic of -----	41,610	35,880	35,729	39,389	² 40,500
Italy -----	24,777	23,981	21,674	24,026	² 23,744
Brazil -----	13,230	¹ 13,000	14,660	18,386	20,456
France -----	21,258	18,416	17,623	19,000	² 18,832
Poland -----	15,719	14,795	16,236	16,533	² 16,100
United Kingdom -----	15,576	13,704	14,986	15,121	² 15,722
Czechoslovakia -----	15,270	14,992	15,024	14,831	² 15,036
Canada -----	14,811	11,762	12,828	14,715	15,000
Spain -----	12,912	13,160	12,731	13,484	² 14,235
Romania -----	13,025	13,055	12,593	14,437	² 13,800
Korea, Republic of -----	10,754	11,753	11,915	13,033	13,500
India -----	10,380	10,715	10,305	10,344	10,860
Belgium -----	12,379	9,916	10,157	11,303	² 10,694
German Democratic Republic -----	7,467	7,169	7,219	7,573	² 7,900
South Africa, Republic of -----	9,004	8,271	7,190	7,827	7,500
Mexico -----	7,663	7,056	6,978	7,509	² 7,271
Total -----	641,169	¹ 579,153	594,253	634,645	638,198
Other -----	¹ 65,482	¹ 64,648	68,541	74,782	76,772
Grand total -----	¹ 706,651	¹ 643,801	662,794	709,427	714,970

^cEstimated. ^bPreliminary. ¹Revised.¹Steel ingots and castings. Table includes data available through June 24, 1986.²Reported figure.Table 23.—Leading world producers of mine lead¹

(Thousand metric tons, Pb content of ore)

Country	1981	1982	1983	1984 ^b	1985 ^c
Australia -----	388	455	481	441	491
U.S.S.R. ^c -----	425	430	435	440	440
United States ² -----	459	530	466	334	³ 424
Canada -----	332	341	252	264	278
Peru -----	193	176	213	205	³ 210
Mexico ² -----	149	170	184	203	200
China ^c -----	160	160	160	160	160
Yugoslavia -----	119	¹ 113	114	114	110
Morocco -----	¹ 118	104	98	101	101
Total -----	¹ 2,343	¹ 2,479	2,403	2,262	2,414
Other -----	¹ 1,023	¹ 943	956	994	978
Grand total -----	¹ 3,366	¹ 3,422	3,359	3,256	3,392

^cEstimated. ^bPreliminary. ¹Revised.¹Table includes data available through June 24, 1986.²Recoverable.³Reported figure.

Table 24.—Leading world producers of manganese ore¹

(Thousand metric tons, gross weight)

Country	1981	1982	1983	1984 ^P	1985 ^e
U.S.S.R. -----	9,150	9,821	9,876	10,089	9,900
South Africa, Republic of -----	5,040	5,217	2,886	3,049	² 3,600
Brazil -----	2,042	2,341	2,092	2,693	2,700
Gabon -----	1,488	1,512	1,857	2,119	² 2,351
Australia -----	1,411	1,123	1,370	1,829	² 1,989
China ^e -----	1,600	1,600	1,600	1,600	1,600
India -----	1,526	¹ 1,490	1,320	1,081	1,140
Mexico -----	578	509	350	476	463
Ghana -----	223	160	173	269	307
Hungary -----	71	83	59	67	66
Romania -----	57	55	78	66	66
Total -----	¹ 23,186	¹ 23,911	21,661	23,338	24,182
Other -----	¹ 371	¹ 312	284	273	241
Grand total -----	¹ 23,557	¹ 24,223	21,945	23,611	24,423

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through June 10, 1986.²Reported figure.**Table 25.—Leading world producers of mine nickel¹**

(Thousand metric tons)

Country	1981	1982	1983	1984 ^P	1985 ^e
U.S.S.R. ^e -----	158	165	170	175	180
Canada -----	160	89	128	174	152
Australia -----	74	88	77	76	² 85
New Caledonia -----	78	60	46	^r ^e 57	73
Indonesia -----	49	46	49	48	49
Cuba -----	39	36	38	32	32
Dominican Republic -----	19	^r 5	20	24	26
South Africa, Republic of ^e -----	² 26	22	20	25	25
Total -----	603	¹ 511	548	611	622
Other -----	¹ 123	¹ 107	119	144	155
Grand total -----	¹ 726	¹ 618	667	755	777

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through May 13, 1986.²Reported figure.**Table 26.—Leading world producers of mine tin¹**

(Metric tons, Sn content of ore)

Country	1981	1982	1983	1984 ^P	1985 ^e
Malaysia -----	59,938	52,342	41,367	41,307	² 36,884
U.S.S.R. ^e -----	¹ 21,000	¹ 21,000	¹ 22,000	¹ 23,000	23,000
Indonesia -----	35,392	33,806	26,553	23,223	² 22,115
Brazil -----	¹ 8,297	¹ 8,218	13,275	19,957	22,000
Thailand -----	31,474	26,109	19,943	21,920	20,000
Bolivia -----	29,830	26,773	25,278	19,911	18,000
China ^e -----	15,000	15,000	15,000	15,000	15,000
Australia -----	12,267	12,126	9,275	7,699	7,000
United Kingdom -----	3,869	4,208	4,025	5,216	5,300
Peru -----	1,519	1,672	2,368	2,991	² 3,807
Zaire -----	¹ 2,452	¹ 2,320	2,163	2,708	2,870
South Africa, Republic of -----	2,811	3,035	2,668	2,301	² 2,194
Total -----	¹ 223,849	¹ 206,609	183,915	185,233	178,170
Other -----	¹ 14,159	¹ 13,316	12,987	13,199	12,933
Grand total -----	¹ 238,008	¹ 219,925	196,902	198,432	191,103

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through June 17, 1986.²Reported figure.

Table 27.—Leading world producers of mine zinc¹

(Thousand metric tons, Zn content of ore)

Country	1981	1982	1983	1984 ^P	1985 ^E
Canada	1,096	1,036	1,070	1,207	1,175
U.S.S.R. ^E	790	800	805	810	810
Australia	518	665	699	659	² 734
Peru	499	507	576	558	² 589
Mexico	207	242	266	304	280
United States	343	326	297	278	² 252
Japan	242	251	256	253	² 252
Spain	182	167	168	230	² 228
Sweden	181	185	203	206	² 207
Ireland	120	167	186	206	192
China ^E	160	160	160	160	190
Poland	² 202	¹ 184	189	191	187
Korea, North ^E	140	140	140	140	160
Germany, Federal Republic of	111	106	114	113	118
Brazil	² 92	¹ 111	119	103	110
South Africa, Republic of	87	92	110	106	² 97
Yugoslavia	89	84	87	82	84
Thailand	--	--	--	41	78
Zaire	63	82	76	75	74
Greenland	80	80	73	71	² 70
Total	² 5,202	² 5,385	5,594	5,793	5,887
Other	² 717	² 741	757	771	769
Grand total	² 5,919	² 6,126	6,351	6,564	6,656

^EEstimated. ^PPreliminary. ²Revised.¹Table includes data available through July 15, 1986.²Reported figure.**Table 28.—Leading world producers of hydraulic cement¹**

(Thousand metric tons)

Country	1981	1982	1983	1984 ^P	1985 ^E
China	84,000	94,072	108,250	121,080	142,500
U.S.S.R.	127,169	123,681	128,156	129,868	131,000
Japan	84,827	80,688	80,891	78,860	² 72,857
United States (including Puerto Rico)	66,163	58,369	64,725	71,395	² 71,540
Italy	41,553	39,728	39,217	37,782	40,000
India	20,760	22,498	25,356	29,030	² 33,050
Germany, Federal Republic of	31,498	30,078	30,466	28,909	29,000
Brazil	26,051	25,644	20,870	^E 25,000	27,000
Spain (including Canary Islands)	28,571	29,569	30,637	25,435	25,500
France	28,229	26,150	24,504	22,724	23,000
Mexico	17,978	19,298	17,068	18,436	² 20,580
Korea, Republic of	15,617	17,887	21,282	20,413	² 20,424
Turkey	15,043	15,778	13,595	15,738	16,000
Poland	14,226	16,100	16,200	16,700	15,000
Taiwan	14,342	13,432	14,810	14,234	² 14,418
Greece	12,940	12,860	14,196	13,521	13,517
United Kingdom	12,729	12,962	13,396	13,481	² 13,344
Romania	14,746	14,995	13,968	14,200	² 12,200
German Democratic Republic	12,204	11,721	11,782	11,555	12,000
Iran ^E	8,000	9,500	10,000	10,500	11,000
Czechoslovakia	10,646	10,325	10,498	10,530	10,265
Total	² 687,292	² 685,335	709,867	729,389	754,195
Other	² 199,105	² 202,221	206,496	218,056	217,605
Grand total	² 886,397	² 887,556	916,363	947,445	971,800

^EEstimated. ^PPreliminary. ²Revised.¹Table includes data available through July 8, 1986.²Reported figure.

Table 29.—Leading world producers of diamond¹

(Thousand carats)

Country	1981	1982	1983	1984 ^P	1985 ^e
Zaire	^r 7,161	^r 6,164	11,982	18,459	19,617
Botswana	4,961	7,769	10,731	12,914	12,900
U.S.S.R. ^e	10,600	10,600	10,700	10,700	10,800
South Africa, Republic of	9,526	9,154	10,311	10,143	² 10,202
Australia	205	^r 457	6,200	5,690	² 7,059
China ^e	950	1,000	1,000	1,000	1,000
Namibia	1,248	1,014	963	930	941
Angola	1,400	1,225	1,034	^e 1,000	625
Total	^r 36,051	^r 37,383	52,921	60,836	63,144
Other	3,717	3,048	2,471	2,681	3,227
Grand total	^r 39,768	^r 40,431	55,392	63,517	66,371

^eEstimated. ^PPreliminary. ^rRevised.¹Gem and industrial grades undifferentiated. Table includes data available through June 3, 1986.²Reported figure.**Table 30.—Leading world producers of nitrogen in ammonia¹**

(Thousand metric tons, N content)

Country	1981	1982	1983	1984 ^P	1985 ^P
U.S.S.R.	12,900	14,000	14,500	^e 15,000	15,500
China ^e	12,193	12,711	^r 13,776	^r 14,000	15,000
United States	14,272	11,820	10,248	12,127	² 12,009
India ³	^r 3,181	3,469	3,565	3,975	4,100
Canada	2,176	2,062	2,888	3,493	3,500
Romania	2,381	2,587	2,727	2,700	2,700
Netherlands	1,814	1,655	1,747	2,311	2,260
France ²	2,270	2,000	1,900	^r 2,000	2,100
United Kingdom	1,780	1,716	1,720	1,836	1,800
Mexico	^r 1,796	^r 2,030	1,936	1,773	1,800
Japan	1,833	1,652	1,545	1,668	1,650
Germany, Federal Republic of	1,962	1,570	1,703	1,963	1,585
Bulgaria	1,023	1,032	1,123	1,138	1,400
Poland	1,389	^r 1,380	1,425	1,494	1,254
Indonesia	920	1,028	1,150	1,658	1,230
German Democratic Republic	1,205	1,170	1,211	1,202	1,210
Italy	1,207	1,046	1,060	^e 1,100	1,200
Total	^r 64,302	^r 62,928	64,224	69,438	70,298
Other	^r 12,670	^r 12,940	14,302	14,957	15,251
Grand total	^r 76,972	^r 75,868	78,526	84,395	85,549

^eEstimated. ^PPreliminary. ^rRevised.¹Table includes data available through May 13, 1986.²Reported figure.³Data given are for years beginning Apr. 1 of that stated.

Table 31.—Leading world producers of phosphate rock¹

(Thousand metric tons, gross weight)

Country	1981	1982	1983	1984 ^P	1985 ^e
United States.....	53,624	37,414	42,573	49,197	² 50,835
U.S.S.R. ^e	30,700	31,300	31,600	31,900	32,200
Morocco ³	18,562	17,754	20,106	21,245	² 20,737
China ²	11,500	11,720	12,500	¹ 14,210	12,000
Jordan.....	4,244	4,390	4,749	6,263	² 6,067
Tunisia.....	4,596	4,196	5,924	5,346	² 4,530
Brazil.....	3,238	2,732	3,208	3,855	4,214
Israel.....	1,919	2,148	2,969	3,312	4,076
Togo.....	2,215	2,800	2,081	2,696	² 2,452
South Africa, Republic of.....	2,718	¹ 3,161	2,887	2,585	² 2,421
Total.....	133,316	¹ 117,615	128,597	140,609	139,532
Other.....	¹ 9,685	¹ 9,770	10,807	11,879	11,831
Grand total.....	¹ 143,001	¹ 127,385	139,404	152,488	151,363

^eEstimated. ^PPreliminary. ¹Revised.¹Includes only phosphate rock; Thomas slag and guano are excluded. Table includes data available through Apr. 16, 1986.²Reported figure.³Includes output from Western Sahara.**Table 32.—Leading world producers of marketable potash¹**(Thousand metric tons, K₂O equivalent)

Country	1981	1982	1983	1984 ^P	1985 ^e
U.S.S.R.....	8,449	8,079	9,294	9,776	10,000
Canada (sales).....	6,549	5,309	6,938	7,527	6,600
German Democratic Republic.....	3,460	3,434	3,431	3,465	3,475
Germany, Federal Republic of.....	2,591	2,056	2,419	2,644	2,580
France.....	1,831	1,704	1,536	1,739	1,750
United States.....	2,156	1,784	1,429	1,564	¹ 1,296
Israel.....	839	1,004	^e 1,000	^e 1,100	1,100
Total.....	25,875	23,370	26,047	27,815	26,801
Other.....	¹ 1,200	¹ 1,139	1,371	1,533	1,817
Grand total.....	¹ 27,075	¹ 24,509	27,418	29,348	28,618

^eEstimated. ^PPreliminary. ¹Revised.¹Table includes data available through Apr. 29, 1986.²Reported figure.

Table 33.—Leading world producers of salt¹

(Thousand metric tons)

Country	1981	1982	1983	1984 ^p	1985 ^e
United States (including Puerto Rico) -----	35,303	34,392	31,393	35,615	² 34,820
U.S.S.R. ^e -----	15,200	15,800	16,200	16,500	17,000
China -----	18,320	16,384	^r 16,130	^r 16,286	14,446
Germany, Federal Republic of -----	12,541	10,978	10,402	^e 11,200	10,500
Canada -----	7,240	7,940	8,602	10,235	10,042
India -----	8,932	7,042	7,013	7,728	7,505
United Kingdom -----	6,720	7,637	6,311	7,126	7,200
France -----	6,636	6,703	6,951	^r 7,007	7,130
Mexico -----	7,953	5,561	5,703	6,157	6,000
Australia -----	6,716	4,811	5,170	^e 5,000	5,000
Poland -----	4,271	3,856	^e 3,630	4,441	² 4,858
Brazil -----	3,605	3,724	³ 4,187	4,527	4,650
Romania -----	5,033	4,756	4,596	^r 4,600	4,600
Netherlands -----	3,578	3,191	3,124	3,674	4,450
Italy ² -----	4,574	4,605	4,554	4,255	4,175
Spain ² -----	3,693	3,289	3,158	3,389	3,300
German Democratic Republic -----	3,112	3,115	^e 3,126	^r 3,133	3,055
Turkey -----	1,396	1,314	^e 1,400	1,299	1,300
Japan -----	1,002	966	921	^e 1,200	1,200
Total -----	155,825	146,064	142,571	153,372	151,231
Other -----	¹ 15,590	¹ 17,520	16,580	17,813	18,010
Grand total -----	¹ 171,415	¹ 163,584	159,151	171,185	169,241

^eEstimated. ^pPreliminary. ^rRevised.¹Table includes data available through June 24, 1986.²Reported figure.³Sales.Table 34.—Leading world producers of elemental sulfur¹

(Thousand metric tons)

Country	1982				1983			
	Native	From pyrites	Byproduct	Total	Native	From pyrites	Byproduct	Total
United States -----	4,210	265	5,312	9,787	² 3,202	W	6,088	9,290
U.S.S.R. ^e -----	² 2,700	3,500	¹ 3,550	¹ 9,750	² 2,600	3,400	¹ 3,650	¹ 9,650
Canada -----	---	^r 8	6,272	¹ 6,280	---	^r 9	6,568	6,577
Poland ^e -----	^r 34,920	---	¹ 210	¹ 5,130	^r 34,960	---	¹ 220	¹ 5,180
China ^e -----	200	1,800	300	2,300	200	2,300	350	2,850
Japan -----	---	276	2,319	2,595	---	272	2,341	2,613
Mexico -----	² 1,391	---	^e 525	^e 1,916	² 1,225	---	^e 477	^e 1,702
France -----	---	---	¹ 2,035	¹ 2,035	---	---	1,910	1,910
Germany, Federal Republic of -----	---	229	^e 1,592	^e 1,821	---	---	^e 1,322	^e 1,322
Spain -----	---	1,029	^e 138	^e 1,167	---	1,073	^e 131	^e 1,204
Saudi Arabia ^e -----	---	---	900	900	---	---	695	695
South Africa, Republic of -----	---	465	160	625	---	474	157	631
Iraq ^e -----	² 300	---	40	340	² 300	---	40	340
Finland -----	---	177	^r 310	¹ 487	---	224	312	536
Yugoslavia -----	---	¹ 353	^e 204	^r 557	---	298	^e 183	^r 481
Italy -----	10	269	^e 210	489	9	271	^e 210	^r 490
Sweden -----	---	204	^r 133	¹ 337	---	208	^r 145	353
Bulgaria ^e -----	---	¹ 300	70	¹ 370	---	¹ 300	70	¹ 370
Romania ^e -----	---	200	150	350	---	200	150	350
Brazil -----	---	54	130	184	² 1	55	260	316
German Democratic Republic ^e -----	---	---	360	360	---	---	360	360
United Arab Emirates -----	---	---	5	5	---	---	10	10
Norway -----	---	¹ 213	^r 91	¹ 304	---	179	^r 103	282
Belgium ^e -----	---	---	270	270	---	---	250	250
Korea, North ^e -----	---	200	30	230	---	200	30	230
Iran -----	10	---	10	20	20	---	25	45
Philippines -----	---	30	---	30	---	29	57	86
Australia -----	---	---	163	163	---	---	183	183
Greece -----	---	55	105	¹ 160	---	67	^e 120	^r 187
Total -----	¹ 13,741	¹ 9,627	¹ 25,594	¹ 48,962	12,517	9,559	26,417	48,493
Other -----	¹ 188	¹ 339	¹ 1,381	¹ 1,908	182	382	1,473	2,037
Grand total -----	¹ 13,929	¹ 9,966	¹ 26,975	¹ 50,870	12,699	9,941	27,890	50,530

See footnotes at end of table.

Table 34.—Leading world producers of elemental sulfur¹—Continued

(Thousand metric tons)

Country	1984 ^P				1985 ^e			
	Native	From pyrites	Byproduct	Total	Native	From pyrites	Byproduct	Total
United States	4,193	W	6,459	10,652	² 4,511	W	6,598	11,609
U.S.S.R. ^e	² 2,600	^r 3,400	^r 3,700	^r 9,700	² 2,550	3,350	3,825	9,725
Canada	—	^r ^e 10	6,596	6,606	—	10	6,738	6,748
Poland ^e	^r ² 4,990	—	^r 220	^r 5,210	² 4,876	—	220	5,096
China ^e	200	2,100	350	2,550	300	2,200	400	2,900
Japan	—	259	2,333	2,592	—	² 253	² 2,257	2,510
Mexico	² 1,364	—	^r ^e 621	^r ^e 1,985	² 1,555	—	635	2,190
France	—	—	1,862	1,862	—	—	1,694	1,694
Germany, Federal Republic of	—	—	1,530	1,530	—	—	1,605	1,605
Spain	—	1,094	^r ^e 137	^r ^e 1,231	—	⁴ 1,133	126	1,259
Saudi Arabia ^e	—	—	^r ^e 833	^r ^e 833	—	—	1,100	1,100
South Africa, Republic of	—	464	^r ^e 121	585	—	⁴ 474	120	594
Iraq ^e	² 500	—	70	570	² 500	—	70	570
Finland	—	211	310	521	—	210	305	515
Yugoslavia	—	301	^e 163	^r ^e 464	—	⁴ 323	173	496
Italy	8	192	^e 200	^r ^e 400	⁴ 1	⁴ 280	200	481
Sweden	—	^r ^e 230	^r ^e 157	387	—	225	155	380
Bulgaria ^e	—	^r 300	70	^r 370	—	300	70	370
Romania ^e	—	200	150	350	—	200	150	350
Brazil	^e ² 1	^e 55	^e 260	^e 316	² 2	60	275	337
German Democratic Republic ^e	—	—	350	350	—	—	330	330
United Arab Emirates	—	—	15	15	—	—	292	292
Norway	—	209	^r ^e 66	275	—	210	68	⁴ 278
Belgium ^e	—	—	240	240	—	—	240	240
Korea, North ^e	—	200	30	230	—	200	30	230
Iran	30	—	30	60	30	—	180	210
Philippines	—	35	95	130	—	107	100	207
Australia	—	—	203	203	—	—	203	203
Greece	—	78	^r ^e 125	^r ^e 203	—	78	125	203
Total	13,886	9,338	27,296	50,520	14,825	9,613	28,284	52,722
Other	149	418	1,520	2,087	177	431	1,526	2,134
Grand total	14,035	9,756	28,816	52,607	15,002	10,044	29,810	54,856

^eEstimated. ^PPreliminary. ^rRevised. W Withheld to avoid disclosing company proprietary data.

¹Includes all recorded production of sulfur, regardless of the form in which it is recovered. Thus, it includes elemental sulfur, whether mined by conventional methods or by the Frasch process, as well as (1) elemental sulfur and the S content of compounds such as H₂S, SO₂, and H₂SO₄ recovered as a principal product of pyrite mining and as a byproduct of the recovery of crude oil and natural gas and as a byproduct of petroleum refining, coal treatment, and metal smelting and/or refining; and (2) sulfur recovered from tar sands, spent oxides, and other miscellaneous sources. Table includes data available through June 3, 1986.

²Entirely Frasch process sulfur.

³Includes Frasch process sulfur as follows, in thousand metric tons: Poland (estimated): 1982—4,428 (revised), 1983—4,460 (revised); 1984—4,500, and 1985—4,386; the U.S.S.R. (estimated): 1982—800, 1983—800, 1984—800, and 1985—850; and total of individually listed countries and grand total: 1982—11,129 (revised), 1983—9,988 (revised), 1984—11,358 (revised), and 1985—12,304.

⁴Reported figure.

Table 35.—Leading world producers of coal (all grades)¹
(Million metric tons)

Country	1982			1983			1984 ²			1985 ³		
	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total	Lignite	Bituminous and anthracite	Total
China	(4)	651	651	(4)	715	715	(4)	772	772	(4)	850	850
United States	48	712	760	52	658	710	57	756	813	63	741	804
U.S.S.R.	163	555	718	158	558	716	156	557	713	169	557	726
German Democratic Republic	276	276	552	278	278	556	296	296	592	312	284	596
Poland	38	189	227	43	191	234	50	192	242	58	192	250
Germany, Federal Republic of	127	89	216	124	82	206	127	79	206	121	82	203
South Africa, Republic of	—	144	144	—	145	145	—	163	163	—	174	174
Australia	38	119	157	34	145	180	35	146	181	35	146	181
India	7	128	135	7	120	127	8	125	133	8	125	133
Czechoslovakia	99	102	201	102	136	238	105	146	251	105	146	251
United Kingdom	54	125	179	58	119	177	64	119	183	69	119	188
Yugoslavia	7	35	42	8	37	45	10	48	58	10	51	61
Canada	24	15	39	25	15	40	24	15	39	24	16	40
Romania	31	2	33	37	3	40	36	3	39	36	3	39
Korea, North*	97	36	133	(4)	36	36	32	32	68	32	36	68
Greece	32	—	32	32	—	32	32	—	32	32	—	32
Bulgaria	23	3	26	22	3	25	22	3	25	21	3	24
Hungary	—	20	20	—	20	20	—	21	21	—	24	24
Korea, Republic of	—	17	17	—	17	17	—	17	17	—	15	15
France	—	—	—	—	—	—	—	—	—	—	—	—
Total	997	2,867	3,864	1,014	2,881	3,895	1,056	3,010	4,066	1,091	3,151	4,242
Other	34	74	108	37	77	114	43	113	156	53	86	139
Grand total	1,031	2,941	3,972	1,051	2,958	4,009	1,099	3,123	4,222	1,144	3,237	4,381

*Estimated. ²Preliminary. ³Revised.¹Table includes data available through Oct. 1, 1986.²Output small: included under "Bituminous and anthracite."³Reported figure.⁴Less than 1/2 unit.

Table 36.—Leading world producers of marketed natural gas¹

(Billion cubic feet)

Country	1981	1982	1983	1984 ^P	1985 ^E
U.S.S.R. -----	16,430	¹ 17,700	18,900	20,700	² 22,700
United States -----	19,181	17,758	16,033	17,992	² 16,428
Netherlands -----	² 2,988	² 2,544	2,703	2,728	² 2,851
Canada -----	2,399	2,683	2,465	2,506	² 2,831
Indonesia -----	720	926	1,032	1,386	² 1,450
United Kingdom -----	1,321	¹ 1,352	1,396	1,363	² 1,389
Algeria -----	² 868	1,048	1,427	1,260	1,320
Mexico -----	1,214	1,279	1,274	1,193	² 1,145
Romania -----	^E 1,200	^E 1,100	1,100	1,127	1,110
Norway -----	924	925	912	964	983
Germany, Federal Republic of -----	¹ 673	569	622	563	² 511
Italy -----	496	512	459	489	503
Venezuela -----	584	527	508	518	² 498
Australia -----	401	409	420	446	² 475
German Democratic Republic -----	301	286	353	459	459
China -----	450	414	431	438	455
Total -----	¹ 50,150	¹ 50,032	50,035	54,132	55,108
Other -----	¹ 4,805	¹ 4,628	4,710	5,225	5,326
Grand total -----	¹ 54,955	¹ 54,660	54,745	59,357	60,434

^EEstimated. ^PPreliminary. ¹Revised.¹Comprises all gas collected and utilized as a fuel or a chemical industry raw material as well as that used for gas lift in fields, including gas used in oilfields and/or gasfields as a fuel by producers even though it is not actually sold. Excludes gas produced and subsequently vented to the atmosphere, flared, and/or reinjected to reservoirs. Table includes data available through Oct. 1, 1986.²Reported figure.Table 37.—Leading world producers of natural gas liquids¹

(Million 42-gallon barrels)

Country ²	1981	1982	1983	1984 ^P	1985 ^E
United States -----	587	566	569	597	³ 587
U.S.S.R. ^E -----	134	145	155	160	175
Saudi Arabia -----	164	¹ 160	^E 125	130	146
Canada -----	120	117	114	139	³ 124
Mexico -----	88	^E 95	113	142	123
Algeria -----	78	¹ 73	92	119	120
United Arab Emirates (Abu Dhabi, Dubai, Sharjah) ^E -----	40	¹ 50	¹ 65	¹ 62	70
United Kingdom -----	¹ 18	¹ 34	47	55	60
Total -----	¹ 1,229	¹ 1,240	1,280	1,404	1,405
Other -----	¹ 121	¹ 116	126	141	148
Grand total -----	¹ 1,350	¹ 1,356	1,406	1,545	1,553

^EEstimated. ^PPreliminary. ¹Revised.¹Every effort has been made to include only those natural gas liquids produced by natural gas processing plants and to exclude natural gas liquids obtained from field treatment facilities including wellhead separators, because the latter are normally blended with crude oil and thus are included in crude oil output statistics. In some cases, however, sources do not clearly specify whether data presented represent only output of natural gas processing plants or if they include field output. Thus, some of the figures may include field condensate. Table includes data available through Oct. 1, 1986.²In addition to the countries listed, China, Czechoslovakia, the German Democratic Republic, the Federal Republic of Germany, and Italy may also produce natural gas liquids in substantial quantities, but available information is inadequate to make reliable estimates of output levels.³Reported figure.

Table 38.—Leading world producers of crude oil¹

(Million 42-gallon barrels)

Country	1981	1982	1983	1984 ^p	1985 ^e
U.S.S.R.	^r 4,476	^r 4,500	4,530	4,500	² 4,370
United States	3,129	3,157	3,171	3,250	² 3,274
Saudi Arabia ^a	3,580	^r 2,309	1,657	1,645	² 1,231
Mexico	844	1,002	973	983	960
United Kingdom	^r 640	^r 730	807	882	890
China	739	745	774	836	² 874
Iran	^r 485	^r 795	892	798	809
Venezuela	768	692	657	658	² 614
Nigeria	525	472	452	502	537
Canada	468	464	495	526	² 530
Iraq	326	310	^e 400	438	521
Indonesia	585	488	490	517	² 484
United Arab Emirates (Abu Dhabi, Dubai, Sharjah)	^r 435	^r 445	400	405	386
Libya	408	^e 418	402	391	386
Total	^r 17,408	^r 16,527	16,100	16,331	15,866
Other	^r 2,995	^r 2,811	3,112	3,426	3,499
Grand total	^r 20,403	^r 19,338	19,212	19,757	19,365

^eEstimated. ^pPreliminary. ^rRevised.¹Table includes data available through Oct. 1, 1986.²Reported figure.³Includes the country's share of production from the Kuwait-Saudi Arabia Partitioned Zone.**Table 39.—Leading world producers of refined oil¹**

(Million 42-gallon barrels)

Country	1981	1982	1983	1984 ^p	1985 ^e
United States (including Puerto Rico and Virgin Islands)	5,358	5,113	4,998	5,223	5,171
U.S.S.R. ^e	3,332	3,393	3,454	^r 3,445	3,445
Japan	1,464	1,337	1,308	1,399	² 1,304
Germany, Federal Republic of	752	719	687	682	² 665
China ^e	450	475	500	550	655
United Kingdom	^r 599	^r 605	608	625	² 614
Italy	741	693	649	629	² 595
France	^r 730	617	564	570	569
Canada	696	589	533	539	528
Mexico	471	462	467	502	² 519
Brazil	385	^r ^e 410	^r ^e 395	^r ^e 405	² 429
Venezuela	319	318	323	325	² 379
Netherlands	360	365	402	407	² 364
Spain (including Canary Islands)	357	337	337	327	² 351
Saudi Arabia ^a	^r 304	^r 311	314	320	320
Singapore	312	305	306	293	294
Total	^r 16,630	^r 16,049	15,845	16,241	16,202
Other	^r 4,956	^r 4,869	5,044	5,119	4,966
Grand total	^r 21,586	^r 20,918	20,889	21,360	21,168

^eEstimated. ^pPreliminary. ^rRevised.¹Table includes data available through Oct. 1, 1986.²Reported figure.³Includes the country's share of production from the Kuwait-Saudi Arabia Partitioned Zone.

