

# The Mineral Industry of Hong Kong

By J. M. West<sup>1</sup>



**H**ONG KONG and its new territories, with a combined area of less than 400 square miles and population estimated at 3.6 million in 1963, was a fair consumer of mineral products, although producing only about US\$15 to US\$20 million in mineral value annually. Operating as a free port, it had one of the world's busiest harbors. Agriculture and fishing were secondary to tourism and trade, which created a great deal of activity in construction and manufacturing. Hotels and reservoir projects to overcome water shortages required large expenditures on construction. Electric power consumption, about 1,530 million kilowatt-hours in 1962, has increased about 20 percent annually. Refugees from the Chinese mainland provided a labor surplus. A cement plant, a number of small metal-processing plants, ship-scraping facilities, and an iron mine were the main components of the mineral industry. During the year, two steel-pipe plants were under construction, Fuji Marden was expanding its line of steel products, the Ma An Shan iron mine completed a new haulage way to raise capacity, and another oil-bunkering terminal for ships was opened.

## GOVERNMENT POLICIES AND PROGRAMS

Although Hong Kong did not have many minerals and only a small mineral-processing industry, the Government was trying to encourage development by an open investment policy and active efforts to stimulate trade. As a free port, Hong Kong enjoyed an unrestricted flow of mineral commodities, part of which was entrepôt trade destined for transshipment. A small mines department was maintained, chiefly for controlling blasting and arranging royalty collections from mineowners. The department granted mining licenses and leases, investigated mine accidents, and published a review of activities.<sup>2</sup> Many of the colony's metalworking industries were Japanese subsidiaries or joint Japanese-Hong Kong enterprises. Nonresident Chinese were also important investors. Government programs to expand water supply facilities, public housing, and other construction required large quantities of cement, steel, and other building materials. Mineral trade was favored by Hong Kong's lack of politically imposed restrictions, preferential treatment as a British Commonwealth member, and eligibility (established in 1962) as a source of purchases financed by the U.S. Agency for International Development.

<sup>1</sup> Physical scientist, Division of International Activities.

<sup>2</sup> Commissioner of Mines (Hong Kong). Annual Department Reports. 1962-63, 21 pp.

## PRODUCTION

The colony produced a variety of minerals, with cement and iron ore the main products and a less important production of clays, feldspar, graphite, quartz, and wolframite. In previous years there also had been some lead-silver mining. Salvage of metal scrap was a sizable business. Cement output in 1963 was valued at US\$3.5 million and iron ore at US\$875,500. The per-ton value of graphite ranged from US\$24 for the best grade to US\$5 for a poorer grade. Iron and steel from scrap contributed about two-thirds of the total mineral output value.

**TABLE 1.—Production of metals and minerals**

(Metric tons unless otherwise specified)

Commodity	1959	1960	1961	1962	1963
<b>Metals:</b>					
Iron ore concentrate.....thousand tons..	122	117	119	112	114
Wolframite, 65 percent tungsten trioxide (WO <sub>3</sub> )..	40	32	17	15	7
<b>Nonmetals:</b>					
Cement.....thousand tons..	142	150	184	212	216
Feldspar.....	1,744	2,551	1,225	952	1,710
Graphite.....	3,340	3,860	1,690	818	809
Kaolin.....	7,370	6,770	8,560	6,470	5,100
Quartz.....	3,620	3,870	4,110	4,220	3,040
Mineral fuels: Coke and breeze <sup>1</sup> .....thousand tons..	20	18	<sup>2</sup> 17	17	15

<sup>1</sup> Between  $\frac{1}{2}$  and  $\frac{3}{4}$  consumed by the producer in making town gas.

<sup>2</sup> Estimate.

## TRADE

Mainland China, recognized by the Hong Kong Government supplied large quantities of coal, cement, and steel products to the colony. Fertilizers were imported from Western Europe and reexported in about the same quantities to mainland China, with 1963 imports nearly tripling the 1962 level. Sizable gold imports were almost all reexported to the gambling city of Macao. Manufacture of surgical-scientific equipment and jewelry accounted for fairly large purchases of foreign platinum, silver, and mercury. Diamond trade was impressive, with total imports valued at US\$52 million in 1963. Most of the diamond came from Belgium and Israel. In 1963, about US\$370,000 of uncut jade was imported from Burma and US\$620,000 of cut and polished but unset jade was imported from mainland China and the Malaya portion of Malaysia. Pearls valued at US\$2.8 million came into Hong Kong during the year, nearly all from Japan. Most important among Hong Kong's exports were iron ore, all going to Japan, and steel scrap from shipbreaking, which went mainly to Japan.

TABLE 2.—Exports and reexports of metals and minerals

(Metric tons unless otherwise specified)

Commodity	1962	1963	Principal destinations, 1963
<b>Exports:</b>			
<b>Metals:</b>			
Aluminum products.....	1,782	1,692	South Viet-Nam 436; Thailand 421; Ceylon 294; Malaysia 260.
<b>Iron and steel:</b>			
Iron ore..... thousand tons..	117	122	All to Japan.
Semimanufactured products..do....	43	57	Thailand 35; South Viet-Nam 6, Cambodia 5.
Scrap..... do.....	110	138	Japan 117; Taiwan 21.
<b>Nonmetals:</b>			
Cement..... do.....	36	15	Malaya 8; Macao 1.
Feldspar-fluorspar.....	406	650	Philippines 330; Thailand 313.
Graphite.....	469	102	All to United States.
Kaolin.....	4,730	4,190	Japan 3,550; Taiwan 670.
<b>Reexports:</b>			
<b>Metals:</b>			
Gold..... thousand troy ounces..	987	1,176	All to Macao.
<b>Nonmetals:</b>			
Cement..... thousand tons..	7	16	Sabah 5; Sarawak 3; Macao 3.
Diamond, cut and polished..... thousand carats..	65	93	Belgium 34; Israel 23; Japan 12.
<b>Fertilizers:</b>			
Ammonium sul-..... thousand tons.. fete.	28	102	All to mainland China.
Others..... do.....	10	26	Do.
Graphite.....	1,180	73	Thailand 68.
<b>Mineral fuels:</b>			
<b>Petroleum refinery products:</b>			
Gasoline..... thousand 42-gallon barrels..	21	18	Macao 17.
Kerosine..... do.....	29	35	All to Macao.
Distillate fuel oil..... thousand tons..	16	19	Do.
Residual fuel oil..... do.....	1	1	Do.
Lubricants..... thousand 42-gallon barrels..	17	33	Taiwan 13; Malaya 8; Macao 4.

TABLE 3.—Imports of metals and minerals

(Metric tons unless otherwise specified)

Commodity	1962	1963	Principal sources, 1963
<b>Metals:</b>			
<b>Aluminum:</b>			
Metal and alloys.....	6, 280	6, 430	Canada 5,370; United States 1,000.
Products <sup>1</sup> .....	2, 440	3, 360	Japan 1,785; mainland China 510; Taiwan 328.
Bauxite.....	325	304	All from mainland China.
Brass metal and semimanufactures.....	6, 400	7, 050	Japan 3,400; United Kingdom 1,600.
<b>Copper:</b>			
Metal.....	138	124	Republic of South Africa 51; United Kingdom 42.
Semimanufactured products <sup>1</sup> .....	1, 050	1, 525	Japan 771; United Kingdom 312; mainland China 254.
Gold <sup>2</sup> ..... thousand troy ounces..	969	1, 179	Australia 513; Canada 479; United Kingdom 167.
<b>Iron and steel:</b>			
Iron ore.....	8, 390	12, 450	All from mainland China.
Pig iron (sponge).....	5, 920	9, 730	Mainland China 6,520; North Korea 2,610.
Ingots, slabs, blooms, bars.....	4, 720	3, 040	Mainland China 2,500; United Kingdom 469.
Ferroalloys.....	56	121	Japan 41; Norway 37.
Semimanufactured thousand tons.....	317	411	Japan 186; mainland China 87; United Kingdom 63.
Scrap..... do.....	43	42	United Kingdom 28; Australia 6; West Germany 2.
<b>Lead:</b>			
Metal.....	523	263	Japan 146; United Kingdom 62.
Semimanufactures.....	108	114	United Kingdom 49; Belgium 41.
<b>Manganese:</b>			
Ore.....	36	50	All from mainland China.
Dioxide.....	2, 956	2, 240	Japan 1,087; Thailand 800.
Mercury..... 76-pound flasks..	715	544	Mainland China 525.
Platinum..... troy ounces.....	11, 275	22, 426	West Germany 17,894.
Silver..... thousand troy ounces..	26	86	North Korea 71; Macao 10.
Tin.....	206	216	United Kingdom 107; mainland China 61; Malaya 48.
Titanium oxides.....	2, 380	2, 245	United Kingdom 935; Japan 702; Italy 225.
<b>Zinc:</b>			
Ore.....		185	All from North Korea.
Metal.....	4, 570	4, 520	Australia 2,370; North Korea 790.
Products.....	553	531	Belgium 122; West Germany 113.
<b>Nonmetals:</b>			
Cement..... thousand tons.....	585	831	Mainland China 437; Japan 183; Taiwan 174; North Viet Nam 35.
Diamond, cut and thousand carats..	372	426	Belgium 200; Israel 129.
Feldspar-fluorspar.....	1, 855	1, 540	Mainland China 1,520.
<b>Fertilizers: <sup>3</sup></b>			
Ammonium sulfate thousand tons..	33	102	Belgium 68; Netherlands 34.
Others..... do.....	15	30	West Germany 26.
Graphite.....	215	184	Mainland China 90; Japan 61.
Lime..... thousand tons.....	45	59	Mainland China 46; Japan 11.
Magnesite.....	111	101	All from mainland China.
Quartz sand.....	4, 250	2, 060	Mainland China 1,620.
Salt..... thousand tons.....	39	35	Mainland China 19; Thailand 12.
Stone, industrial..... do.....	300	350	Japan 241; mainland China 109.
Sulfur, crude and refined.....	1, 454	1, 708	West Germany 469; France 453; mainland China 203.
<b>Mineral fuels:</b>			
Coal..... thousand tons.....	219	193	Mainland China 144; Japan 28; North Viet-Nam 13.
Coke.....	4, 080	4, 100	Taiwan 1,630; Japan 1,370.
<b>Petroleum products:</b>			
Gas..... thousand 42-gallon barrels..	617	734	Malaysia 368; Iran 216; Persian Gulf Sheikdoms 112.
oline.....			Malaysia 801; Iran 718; Persian Gulf Sheikdoms 256.
Kerosine..... do.....	1, 695	2, 069	Malaysia 123; Iran 68; Persian Gulf Sheikdoms 36; Saudi Arabia 33.
Distillate fuel oil..... thousand tons..	264	294	Malaysia 572; Indonesia 340; Iran 125.
Residual fuel oil..... do.....	987	1, 282	Malaysia 68; West Indies 32; United Kingdom 23.
Lubri- thousand 42-gallon barrels..	140	139	
cants.....			

<sup>1</sup> Estimated by Bureau of Mines.<sup>2</sup> Mostly reexported to Macao.<sup>3</sup> Mostly reexported to mainland China.

## COMMODITY REVIEW

## METALS

**Iron Ore.**—Ma An Shan in the new territories, Hong Kong's only iron mine, employed about 650 workers in 1963. Mining from this contact metamorphic deposit was started from the surface but had gone underground. The ores were being magnetically upgraded from 32 to 56 percent iron in an 800-ore-ton-per-day wet concentrator. About one-fifth of the production came from handsorted dump recoveries. Technical assistance was provided by the Japanese, and all production was exported to Japan. Output was expected to double after opening a mile-long tunnel in October 1963, extending to the ore-body bottom.

**Iron and Steel.**—Hong Kong's numerous small iron and steel plants, rolling mills, and foundries produced a limited range of products such as bars, rounds, and flats. The industry employed an estimated 2,700 persons and produced roughly 200,000 tons of steel bars in 1963, working at about two-thirds capacity.<sup>3</sup> Steel-bar consumption was much higher than production, requiring net imports of 149,000 tons. In addition, net imports of other iron and steel products amounted to more than 200,000 tons. Fuji Marden, built in 1960 by Fuji Iron Works (Japan) and Wheelock Marden (Hong Kong) and probably the colony's largest plant, produced about 25,000 tons per years of iron bars and was expanding to include iron sheets, pipe, and galvanized products. The company also was completing a large shipbreaking yard, with the scrap scheduled to be sent to the local mill and, to a lesser extent, Japan. Sigma Shipping operated a rerolling mill on Tsing Yi Island. Sakai Steel Pipe, organized by Japanese and Hong Kong interests, was building a 300- to 500-ton-per-month plant at Kowloon to make pipe from Japanese imported steelplates. Another pipe plant under construction was to produce 2,000 tons per month. It was reported that a stainless steel plant capable of producing 20,000 tons per year of finished products would be built on Lantao Island to utilize the scrap formerly sold to Japan.

Scrap was basic to the local steel industry. Hong Kong, with its busy shipbreaking yards, was a net exporter of 96,000 tons of scrap in 1963. Exports, going chiefly to Japan, were one-fourth higher than in 1962. However, the number of ships imported for breaking fell to 29 from 46 in 1962 because of greater cargo traffic and better freight rates. Fewer ships for scrapping pushed hull prices up. Strips cut from ship plates were rolled directly into steel bars. Remelting, an expensive step with high-cost Hong Kong electricity, was thus avoided and gave producers a small competitive edge over imports, at least for the smaller bars. Larger bars were manufactured by a few companies having electric furnaces.

<sup>3</sup> Wu, Michael. A Market and 26 Rolling Mills. *Far Eastern Econ. Rev.*, v. 42, No. 13, Dec. 26, 1963, pp. 676-677.

## NONMETALS

**Cement.**—Apparent consumption of cement, an indication of construction activity, was about 1 million tons in 1963, more than one-third higher than in 1962. Production, all by Green Island Cement Co., Ltd., was slightly above that of 1962, while imports jumped 246,000 tons in 1963. All coal and gypsum and some limestone were imported for making cement. Plans were announced to build a 120,000-ton-per-year clinker-grinding plant in the Hong Kong harbor area; the clinker would be supplied by the Taiwan Cement Corp. in Taiwan, a principal investor in the enterprise.

**Other Nonmetals.**—Brick and tile clays were mined and processed at brickworks in the Castle Peak area, but production data were unavailable. High-grade kaolin was mined at Cha Kwo Ling, near Devils Peak, by Hong Kong Clays and Kaolin Co., Ltd., and exported mostly to Japan. Graphite from the West Brothers Island deposit, where an interbed 1 to 10 feet thick occurs in sandstone, consisted of two grades, 50- and 80-percent fixed carbon. In 1963, 537 tons of the total production was high grade and a fifth of this was exported to the United States.

## MINERAL FUELS

**Coal.**—The principal coal users were the Hong Kong and China Gas Co., Ltd., the sole producer of coke, and several shipbuilding and ship-breaking yards. Coke was consumed by local foundries. Coal imports in 1963 came mostly from mainland China. Coke had come from that source until 1962 when, because of quality considerations, Chinese coke was displaced by Taiwanese and Japanese coke on the Hong Kong market. Consumption of coal fell one-eighth from 1962 to 1963. Oil, less demanding of precious storage space, was replacing coal. Another factor was a Government prohibition on installing coal-burning equipment in new buildings.

**Petroleum.**—All petroleum requirements were met by imports of refined products, mainly from Malaysia and the Middle East. Total oil imports in 1963 exceeded 3 million barrels. Small quantities of the oil went to Macao by reexport. Ship and aircraft bunkers were large consumers. Bunkering facilities were expanded when Gulf Oil Terminal, Inc., a Gulf Oil Corp. subsidiary, opened a US\$2.5 million harbor terminal at Tsuen Wan in January 1963. Other companies in the harbor area with ship-fueling facilities included Shell Co. of Hong Kong, Standard Vacuum Oil Co., and Caltex (Asia), Ltd.