

THE MINERAL INDUSTRY OF UNITED KINGDOM

By Harold Newman

As a result of favorable geological conditions, the United Kingdom was well endowed with mineral resources. Although metallic ore deposits were typically small, they tended to be relatively high graded. Mine production of ferrous and nonferrous minerals has been declining for the past 20 years as reserves became depleted. Since processing has become the basis of a large and economically important mineral industry, imports are required by industries to satisfy their metallurgical requirements.

The industrial minerals sector has provided a significant base for expanding the extractive industries and there has been a shift in balance away from the metallic mineral sector. The United Kingdom companies have a substantial interest in the production of, both domestic and foreign, industrial minerals, such as aggregates, ball clay, china clay (kaolin), and gypsum.

The offshore United Kingdom sector of the North Sea Oilfield, in its 31st year of activity, continued to be a significant player in the international oil and gas sector. As a result, the country has become a base for international oil companies and a major energy supplier to other countries.

The current statute regarding the development and working of mineral deposits is the 1971 Act, as amended, which consolidates all earlier planning legislation and has been amended by various statutes.

Mineral development was specifically addressed in the Town and Country Planning (Minerals) Regulations, 1971, and the Town and Country Planning (Minerals) Act, 1981. Minerals were defined in section 209 of the 1971 Act to include all minerals and substances in or under land of a kind ordinarily worked for removal by underground or surface workings, except it does not include peat cut for purposes other than for sale.

Mineral rights to mineral fuels such as coal, petroleum, and uranium, belong to the state. Formerly, British Coal Corp. (BC) controlled almost all the mineral rights to the national coal reserves. This control now rests with The Coal Authority, which is authorized to license open pit and underground mines to the private sector subject to restrictions on size and the payment of royalty on the amount of coal produced.

Most other mineral rights in Great Britain are privately owned. The exception is gold and silver, the rights to which are vested in the Royal Family and are referred to as Crown Rights. A different situation regarding mineral rights applies

to Northern Ireland where, under the Mineral Development Act (Northern Ireland), 1969, the right to work minerals and the right to license others to do so is vested in the state, as opposed to private ownership.

Currently, there is no national registry for mineral rights in the United Kingdom, except for hydrocarbons. This has created problems and is a matter of concern for the mining industry. Locating current owners of mineral rights on some properties can be a costly and time-consuming process.

A significant event of 1995 was the completion of the privatization of BC which had been in the Government sector since 1947, when the industry was nationalized. BC had consisted of six underground mining groups and the Opencast Executive, which was responsible for open pit mining. BC owned most of the coal reserves in the country and licensed and collected royalties from the privately owned mines. At yearend, 22 underground mines and 32 open pit mines, all privately owned, were in production. Open pit coal production continued to increase. In underground coal operations, production decreased as reserves were depleted even though overall productivity increased almost 17%.

The steel sector's operations showed a moderate improvement as the demand for steel increased. British Steel (BS) was reportedly utilizing 80% of its production capacity. Production of tin concentrate continued from the one remaining tin mine in Cornwall. (*See table 1.*)

The United Kingdom has shifted from being a net exporter of goods as recently as 1986 to being a net importer. Part of the reason for the weaker export performance has been problems in the United Kingdom sector of the North Sea Oilfield. These have been mostly resolved. Other contributing factors were adverse currency exchange rates with trading partners and a petroleum surplus. The United Kingdom's export trade is dominated by petroleum.

Table 2 shows the impact of selected classes of mineral commodities on the United Kingdom's balance of payments position in relation to the European Union and the world. The figures, in thousands of dollars, are for 1994, the latest year for which data were available. (*See table 2.*)

The Department of Trade and Industry (DTI) has the responsibility to ensure a continuing supply of minerals for the country's industry. DTI's area of responsibility includes all nonenergy, nonconstruction minerals, including metallic ores and such industrial minerals as barite, china clay (kaolin), fluorspar, high-grade limestone, potash, salt, and

silica sand.

The Department of Energy (DOE) was formerly responsible for mineral fuels that included coal, natural gas, and petroleum, and also for issuing licenses for the exploration, appraisal, and production of natural gas and petroleum. The responsibility for these DOE functions was absorbed by DTI. A new Metals and Minerals Branch was formed to oversee these activities.

DOE remains responsible for minerals used in the construction industry. These include aggregates, brick and brick clay, cement and its raw materials, dimension stone, gypsum for plaster, and sand and gravel. Both state and privately owned corporations produce minerals and mineral-based products. State ownership was mostly in the mineral fuels and nuclear power industry. (*See table 3.*)

Of the four primary aluminum smelters in the United Kingdom, three are owned and operated by British Alcan Aluminium Ltd. The fourth smelter, operated by Anglesey Aluminium Ltd., is 51% owned by RTZ Corp. of the United Kingdom, and 49% owned by Kaiser Aluminum and Chemical Corp. of the United States. All of the aluminum smelters depend on imported alumina for feedstock.

British Alcan signed a new contract with RJB Mining to supply the company's 390-megawatt Lynemouth power station with 5 million metric tons (Mt/yr) of coal over the next 5 years.

The secondary aluminum metal industry in the country treats recycled aluminum and low-grade aluminum scrap, such as swarf. The main consuming sector for secondary aluminum ingot is the automotive industry.

Activities in gold exploration and development in the United Kingdom increased in 1995. Northern Ireland, Scotland, and Wales continued as the three main areas of exploration by companies. Scotland was the most active area with several exploration licenses in effect.

The MIDAS project, a major investigation of gold mineralization at numerous deposits in the Caledonian and Hercynian orogenic belts of Europe, was completed under the leadership of the British Geological Survey. Evaluation of multidisciplinary digital data for selected deposits allowed a classification of the gold mineralization styles to be established. On this basis, metallogenic models were presented in the final report and the optimum exploration methodology for each deposit type defined.

Omagh Minerals Ltd. received formal governmental consent for its open pit gold mine at Cavanacaw, County Tyrone, Northern Ireland. Site work was scheduled to commence in 1996. The company estimated it could have a production of 373 kilograms per year (kg/yr) of gold and 466 kg/yr of silver for an initial 7 year period. Exploration was continuing to define further reserves.

In early 1995, Caledonia Mining Corp. acquired Fynergold Exploration and its Cononish gold deposit near Tyndrum, 96 km north of Glasgow, Scotland, from Ennex International PLC for a reported \$4.25 million and 500,000 shares of

Caledonia. Production was expected to commence in 1997 at a rate of 715 kg/yr. Ennex International PLC, operating as Ulster Minerals Ltd., reported that its Curraghinalt deposit near Gortin, County Tyrone, Northern Ireland, contained estimated probable reserves of 248,000 metric tons (t) of ore grading 11.32 g/t and estimated probable reserves of 660,000 t of ore grading 8.92 g/t. Exploration was continuing in an attempt to block out sufficient ore to justify mine development. Production of iron ore was limited to a small amount of hematite ore mined by Egremont Mining Co. at the Florence Mine in Cumbria. Production of ironstone ceased after 1992. Primary steel production was based on imported iron ore, mainly from Australia and Brazil.

BS's integrated steelworks were producing above the level of last year. BS reported this was because of a moderate increase in steel demand reflecting an improved economy. Projects completed included the cold mill link enhancement at Port Talbot, a heavy section mill at Scunthorpe, and coil handling and quench facilities at Llanwern. The second ladle arc furnace at Scunthorpe was due for completion in 1996.

MIM Holdings (U.K.) Ltd. purchased the Avonmouth lead-zinc smelter from Pasmenco Ltd. reportedly for about \$72 million. The Avonmouth plant is the world's largest Imperial Smelting Process (ISP) smelter. The ISP plant has a capacity of 55,000 metric tons per year (t/yr) of lead and 120,000 t/yr of zinc. The purchase of the Avonmouth plant could provide another in-house outlet for the bulk lead-zinc concentrates produced from MIM's Mount Isa/Hilton complex in Australia.

Canadian South Crofty Holdings', formerly Cannon Consolidated Tin Mines Ltd., South Crofty Mine, near Camborne, Cornwall, produced about 187,000 t/yr of ore averaging 1.22% tin which was sent to the company's Wheal Jane mill near Truro. The treatment produced a 58% grade of tin concentrate. Most of the concentrate was exported to Malaysia.

Canadian South Crofty initiated a \$4.8 million major improvement program, including deepening of the mine to the 470 Fathom Level.

DOE has made proposals to limit the growth of land-based quarrying in England and Wales by 20% during the next 20 years. The proposals included the expansion of coastal superquarries, such as Foster Yoeman Ltd.'s Glensanda quarry at Oban, Scotland, and the use of recycled material in construction.

Redlands Aggregates Ltd. was waiting permission from the Secretary of State of Scotland to develop a coastal superquarry at Lingarabay, Scotland. Redlands estimated the proposed quarry has reserves of 600 million metric tons (Mt) of anorthosite. Capacity of the proposed project would be about 1 Mt/yr and increasing, over a number of years, to between 5 Mt/yr and 12 Mt/yr.

ARC Marine Plc, a subsidiary of the Hanson Group, was to acquire Barton Group's marine aggregate subsidiary, Civil and Marine Ltd, for about \$100 million. Civil and Marine

produces about 4 Mt/yr of marine aggregate. This acquisition would make ARC Marine the largest United Kingdom marine aggregate producer.

There were signs that the recession in the building and construction industry, which severely restricted raw material demand, appeared to be over. The United Kingdom's construction output increased by an estimated 3%, and included a high proportion of cement-intensive new work. Cement consumption was up an estimated 12%. The firmer market led to a modest cement price recovery, the first increase in a number of years.

Blue Circle Cement Ltd. was the United Kingdom's largest cement producer with about 49% of the domestic market share. Castle Cement Ltd. was second with more than 25% of the market share.

The United Kingdom was the leading world producer and exporter of ball clay, as well as the world's largest exporter and second-largest producer, after the United States, of kaolin (china clay). Watts, Blake, Bearne & Co. PLC (WBB) was the country's largest producer of ball clay. English China Clays PLC (ECC) was the largest producer of kaolin in the United Kingdom and one of the major producers worldwide. ECC usually exports about 85% of its product, mainly to western Europe.

All mining of ball clay was carried out in Dorset and Devon Counties in the southwest area of the United Kingdom. WBB Devon Clays Ltd. is responsible for the ball clay operations of WBB. The division operated eight open pit mines and three underground mines that have a total combined output of 500,000 t/yr of crude ball clay. The company announced it was merging its Devon pits into a single operation.

ECC Ball Clays Ltd. is responsible for the ball clay operations of ECC. The division operates five quarries, three underground mines, and two open pit mines with a combined output of 450,000 t/yr of crude ball clay. Seventy percent of the output was exported.

ECC International Ltd. (ECCI) operated ball clay and kaolin mines and quarries in the Wareham Basin in Dorset; in the Bovey Basin in south Devon; and in the Petrockstowe Basin in north Devon. A majority of the production is from the Bovey Basin.

ECCI announced a major capital expenditure program for the Cornwall and Devon areas of around \$56 million. The company stated that most of the expenditure will be in the areas of clay refining and drying to include installation of fluid-bed dryers and superconducting magnetic separators, enhancement of selective froth flotation of coarse residues and subsequent sand grinding to produce a range of particle sizes. These process developments were expected to increase recovery of kaolin from the clay matrix to over 90%, as against 70% a few years ago.

Fluorspar mining was concentrated in Derbyshire from the Southern Pennine deposit, and the major producer was Laporte Industries PLC. Laporte operates two underground

mines and one open pit mine. The latest operation, the Milldam Mine, came on-stream in 1992. The company expected the mine to produce 85,000 t/yr of ore grading 45% to 50% calcium fluoride. The ore is processed at Laporte's Cavendish Mill near Sheffield.

British Gypsum Ltd. (BG), the subsidiary of BPB Industries PLC, was the major producer of gypsum in the United Kingdom. The company has mines in Cumbria, Leicestershire, Nottinghamshire, Staffordshire, and Sussex that produce about 3 Mt/yr of gypsum. With few exceptions, all of this material goes to supply the domestic market.

Desulphogypsum, the synthetic gypsum produced by the neutralization of sulfur dioxide contained in flue gases at coal-fired power stations, was produced in 1995 for the first time in the United Kingdom. Total output in 1995 was about 600,000 t. The amount of desulphogypsum produced at flue gas desulphurisation (FGD) units is dependent on two main factors: the electricity output of the power station, and the proportion of sulfur in the coal. The FGD plant is designed to remove sulfur at levels of up to 2.8% in coal. The coal delivered from the Selby Complex contains about 1.1% sulfur. Output of desulphogypsum was supplied to BG for plasterboard manufacture.

Cleveland Potash Ltd. (CPL) operated the Boulby Mine in Yorkshire and was the only potash producer in the United Kingdom. The company also mined rock salt, as a coproduct, from an underlying seam in the Boulby Mine. The production ratio was about a 2:1 potash-to-salt. CPL was continuing with a \$10-million capital investment program to improve recovery at the Boulby Mine.

TMC Pioneer Aggregates Ltd., a joint-venture operation between Pioneer Aggregates (UK) Ltd. and TMC Ltd., was developing what was expected to be the largest sand and gravel operation in the United Kingdom. Production was planned to be between 1 Mt/yr and 2 Mt/yr. The quarry, at Boreham, Essex, covers 480 hectares with estimated reserves of 34 Mt. Pioneer Aggregates owned 26 quarries in the United Kingdom.

Most slate mining in the United Kingdom was in north Wales, with additional mining operations in Cornwall and the Lake District. Penrhyn Quarries Ltd., Bangor, North Wales, was the largest slate operation, producing around 25,000 t/yr of roof slate. The quarry, measuring 2,415 m by 805 m, was considered to be the world's largest slate quarry. Penrhyn produced more than one-half of the United Kingdom's entire production of roofing slate. The company exported about two-thirds of its production.

At the end of 1994 all mines, underground and opencast, of the publicly owned coal industry were returned, after 48 years, to the private sector. The sale included 21 underground mines, 32 opencast mine sites, over 700 Mt of coal reserves, and contracts to supply over 100 Mt of coal to electricity generators in England, Scotland, and Wales by March 1998.

By yearend 1995, the United Kingdom coal mining industry was mostly in the ownership of RBJ Mining which

operates 19 underground mines and 21 opencast mines with estimated coal reserves of 540 Mt (underground) and 20 Mt (opencast). RJB is the largest United Kingdom coal mining company and the largest independent coal producer in Europe. In 1995, RJB produced an estimated 38 Mt of coal, of which about 80% was from underground operations. The largest operation was the underground Selby Complex which produces about 12 Mt/yr.

Mining (Scotland) Ltd acquired all operations in Scotland (nine opencast sites and the underground Longannet Mine) with estimated coal reserves of 70 Mt, and Celtic Energy Ltd acquired all operations in Wales (nine opencast sites) with estimated coal reserves of 50 Mt.

A group of seven petroleum and natural gas companies were studying the feasibility of a natural gas interconnection between the United Kingdom and continental Europe. The Government had indicated its support for the project in the context of the future integration of European trade in natural gas. The 243 km long, \$425 million, 15-billion cubic meters per year capacity natural gas pipeline would be built from the Bracton terminal, Norfolk, to Zeebrugge, Belgium. The first natural gas likely to enter the proposed pipeline would come from the Britannia field jointly operated by Chevron and Conoco. Britannia, slated for production in 1997, was the largest United Kingdom offshore gas field under development.

The most significant new offshore field in production in 1995 was the Liverpool Bay complex centered on block 110/13, including Douglas (petroleum), Hamilton and Hamilton North (gas), and Lennox (petroleum and gas). First natural gas production was in December 1995, with petroleum production to begin in early 1996.

The 16th round of tenders was announced in November 1994 and exploration licenses were awarded in May 1995 for all of the 26 blocks offered in the west of Scotland.

The United Kingdom has an onshore producing oilfield, the Wytch Farm Field in Dorset, containing estimated reserves of 450 million barrels. Exploration and drilling by British Petroleum confirmed that the field extends offshore under Poole Bay.

Rail and trucking transportation is well developed. The

state-owned British Railways operates a 16,629-km, 1.435-m standard-gauge system with 4,205 km of electrified and 12,591 km of double or multiple track. In addition standard-gauge and narrow-gauge lines are privately owned and operated. Northern Ireland Railways operates a 332-km, 1.600-m gauge system with 190 km of double track.

All three major steel-producing areas are on or near tidewater. Petroleum refineries are likewise on the coast. The major cargo ports are Bristol, Liverpool, London, and Southampton in England; Glasgow in Scotland; Cardiff and Milford Haven in Wales; and Belfast in Northern Ireland.

Transportation, not only in the United Kingdom but also in the whole of Europe, changed significantly with the completion and operation of the Channel Tunnel. The tunnel, referred to as the "Chunnel," has been constructed underneath the English Channel and connects Folkestone, England, and Coquelles, near Calais, France. From these terminals, people drive their cars and trucks onto trains that transport them 49 km to the other side in about one-half hour. Everything transported through the tunnel will move by rail. The Channel Tunnel, linking the two countries, was expected to be a vital component of the European single market concept.

The United Kingdom is a significant player in the world mining and mineral processing industries. This is more the result of an extensive range of companies in the country, with various interests in the mineral industry internationally, rather than production from the domestic industry. This is expected to continue.

Exploration is expected to continue onshore and offshore. Onshore exploration activities will be mainly directed toward precious metals. Offshore exploration interest will continue to be focused on North Sea areas, particularly the area west of Shetland Islands, the Central North Sea and the Southern Gas Basin.

The Government publication "UK Strategy for Sustainable Development" is expected to be a significant framework for the development of mineral resources. There will be further efforts to raise the level of environmental management and to maximize the best use of natural resources, including use of recycled materials and alternate sources of energy.

TABLE 1
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
METALS					
Aluminum:					
Alumina from imported bauxite e/	110,000	120,000	105,000	105,000	110,000 2/
Metal:					
Primary	294,512	244,168	239,099	231,223	237,899 2/
Secondary	163,000	252,000	274,000	248,900	282,000 2/
Cadmium, metal including secondary	449	383	458	469	549 2/
Copper:					
Ore and concentrate, Cu content	294	--	--	--	--
Metal, refined:					
Primary	16,606	10,363	10,629	11,078	8,874 2/
Secondary	53,455	31,704	35,949	35,586	42,993 2/
Total	70,061	42,067	46,578	46,664	51,867
Iron and steel:					
Iron ore:					
Gross weight	59,400	30,900 r/	1,100	1,300	1,000
Fe content	13,570	7,130	253	299	250
Metal:					
Pig iron	11,883	11,500	11,534	11,943	12,238 2/
Ferrous alloys, blast-furnace:					
Ferromanganese	do.	178	137	45	--
Steel, crude	do.	16,474	16,212	16,625	17,286
Rolled products	do.	19,500	14,000	13,500	14,000
Lead:					
Mine output, Pb content	1,020	1,000	1,000	2,000	1,600
Metal:					
Smelter:					
Bullion from imported concentrate	40,304	42,164	45,183	36,619	38,311 2/
Secondary (refined) e/ 3/	110,000	100,000	154,193	100,000	100,000
Total e/	150,304	142,164	199,376	136,619	138,311
Refined:					
Primary 4/	164,338	198,805	209,560	191,036	150,208 2/
Secondary 3/	146,676	147,990	154,193	161,430	167,466 2/
Total e/	311,014	346,795	363,753	352,466	317,674
Magnesium metal, secondary including alloys e/	800	800	1,000	1,000	1,500
Nickel metal, refined e/ 5/	29,000	28,000	27,000	28,400	31,800
Silver, mine output, Ag content	565	--	--	--	--
Tin:					
Mine output, Sn content	2,325	2,040	2,232	1,922	1,971 2/
Metal:					
Primary	1,660	--	--	--	--
Secondary (refined)	3,580	100	100	100	100
Zinc:					
Ore and concentrate, Zn content	1,078	--	--	--	--
Metal, smelter	100,651	96,813	102,391	101,300	100,000
INDUSTRIAL MINERALS					
Barite 6/	85,505	76,723	32,623	54,000	85,000
Bromine	29,323	29,903	27,423	33,800	30,000
Cement, hydraulic	12,297	11,006	11,039	12,493	12,500
Clays:					
Fire clay	867	572	479	679	700
Fuller's earth 7/	189	189	187	134	130
Kaolin (China clay) 8/	2,911	2,502	2,461	2,530	2,650
Ball clay and pottery clay 8/	729	744	746	825	870
Other, including shale e/	13,038	12,155	10,891	12,464	14,000
Diatomite e/	220	120	200	180	--
Feldspar (china stone)	6,417	8,243	6,960	8,400	8,000
Fluorspar, all grades 9/	77,903	76,129	70,285	50,000	55,000
Gypsum and anhydrite e/	3,500	3,000	2,500	2,000	2,000
Lime, quicklime and hydrated e/	2,800	2,500	2,500	2,500	2,500
Nitrogen, N content of ammonia	1,010	869	873	1,006	1,000
Potash, K ₂ O equivalent	495,000	529,000	550,000	580,000	560,000

See footnotes at end of table.

TABLE 1--Continued
 UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/	
INDUSTRIAL MINERALS--Continued						
Salt:						
Rock	thousand tons	1,640	1,500	1,200	1,700	1,800
From brine	do.	1,320	1,200	1,300	1,300	1,300
In brine, sold or used as such	do.	3,870	3,400	4,080	4,004	4,000
Sand and gravel: e/						
Common sand and gravel	do.	89,311	88,900 2/	89,500	91,450	104,000
Industrial sand	do.	3,900	3,620 r/	4,000	4,038	4,200
Sodium compounds, n.e.s, carbonate	do.	1,000	1,000	1,000	1,000	1,000
Stone:						
Crushed:						
Calcite e/	thousand tons	8	4	4	3	--
Chalk	do.	10,317	9,171	9,076	10,236	10,000
Chert and flint	do.	5	--	--	--	--
Dolomite	do.	19,454	18,539	17,985	17,616	16,000
Igneous rock	do.	53,948	57,654	57,766	56,494	50,000
Limestone	do.	93,861	89,399	93,727	106,626	97,000
Sandstone including ganister	do.	16,607	14,890	16,059	18,974	17,000
Slate including fill	do.	293	326	462	308	350
Total e/	do.	194,493	189,983	195,079	210,257	190,350
Dimension:e/						
Igneous	do.	127	100	100	100	100
Limestone	do.	243	200	200	200	200
Sandstone	do.	200	200	200	200	200
Slate	do.	67	66	61	60	60
Strontium minerals		2,000	2,000	1,000	--	--
Sulfur, byproduct: e/						
Of metallurgy		65,000	60,000	72,000	70,000	50,000
Of petroleum refining		140,000	175,000	200,000	150,000	200,000
Total		205,000	235,000	272,000	220,000	250,000
Talc, soapstone, pyrophyllite		10,800	5,220	5,320	5,275	4,000
Titania e/ 10/		84,200 r/	108,000 r/	85,400	85,000	85,000
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	thousand tons	1,860	2,040 r/	1,404	1,000	1,000
Bituminous including slurries, fines, etc.	do.	92,300 r/	83,300	66,800	47,971	51,583
Lignite	do.	3	3	2	2	2
Total	do.	94,163 r/	85,343 r/	68,206	48,973	52,585
Coke:						
Metallurgical		7,010	6,397 r/	6,030	6,164	5,280
Breeze, all types		152	131 r/	61	38	40
Fuel briquets, all grades e/		1,200	1,000	1,000	1,034	841 2/
Gas, natural:						
Marketable 11/	million cubic meters	69,300	64,100	65,500	69,700	76,000
Marketed 12/	do.	55,300	50,200	52,800	57,200	62,300
Natural gas liquids 13/	thousand 42-gallon barrels	51,400	35,300	40,700	53,200	
Petroleum:						
Crude 14/	do.	684,000	707,000	749,000	892,740	913,500
Refinery products:						
Liquefied petroleum gases	do.	19,300	18,500 r/	18,400	20,138	22,600 2/
Naphtha including white spirit	do.	21,400	26,100 r/	23,100	23,900	24,000
Gasoline	do.	236,000	249,000 r/	253,000	234,277	231,660 2/
Jet fuel	do.	56,300	61,500	66,700	61,600	62,696 2/
Kerosene	do.	19,000	19,000	20,000	22,994	22,661 2/
Distillate fuel oil	do.	194,000	191,000 r/	204,000	202,442	202,681 2/
Residual fuel oil	do.	87,900	82,500	83,000	75,777	72,395 2/
Lubricants	do.	6,810	8,140	8,200	9,072	8,827 2/
Bitumen	do.	14,000	14,200	15,000	15,568	14,902 2/
Petroleum coke e/	thousand 42-gallons barrels	3,100	2,940	3,000	3,735	3,000
Petroleum wax e/	do.	291	488	500	503	500
Unspecified e/	do.	4,340	3,300	3,500	4,361	30,177
Refinery fuel and losses	do.	45,700	42,500	42,000	42,000	42,000
Total e/	do.	708,141	719,168 r/	740,400	716,367	738,099

See footnotes at end of table.

TABLE 1--Continued
 UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

e/ Estimated. r/ Revised.

1/ Table Includes data available through May 1996.

2/ Reported figure.

3/ Includes a small quantity of primary lead from domestic concentrate.

4/ Produced entirely from imported bullion and includes the lead content of alloys.

5/ Refined nickel and nickel content of ferronickel.

6/ Includes witherite.

7/ Salable product.

8/ Sales, dry weight.

9/ Proportions of grades not available; probably about two-thirds acid grade.

10/ Sales.

11/ Methane, excluding gas flared or reinjected.

12/ Marketable methane, excluding that used for drilling, production, and pumping operations.

13/ Includes ethane, propane, butane, and condensates.

14/ Excludes gases and condensates.

TABLE 2
 UNITED KINGDOM: 1994 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES 1/

(Thousand dollars)

Mineral commodity	Exports to EU	Imports from EU	Net gain or (loss)	Exports to the world	Imports from the world	Net gain or (loss)
Crude industrial minerals:						
Feldspar	39	148	(109)	203	148	55
Magnesite	12	3,476	(3,464)	202	5,233	(5,031)
Slate	17	625	(608)	398	2,524	(2,126)
Other	353,477	218,171	135,306	648,885	536,954	111,931
Total	353,545	222,420	131,125	649,688	544,859	104,829
Metalliferous ores:						
Copper	100	150	(50)	391	249	142
Lead	--	253	(253)	47	253	(206)
Tin	255	6	249	7,784	6	7,778
Zinc	--	1,786	(1,786)	52	58,514	(58,462)
Other (including waste and scrap)	557,682	306,998	250,684	988,283	1,701,378	(713,095)
Total	558,037	309,193	248,844	996,557	1,760,400	(763,843)
Nonmetallic mineral manufactures	2,398,641	842,079	1,556,562	4,372,406	4,218,259	154,147
Metals:						
Iron and steel	2,814,286	2,930,500	(116,214)	5,429,897	4,369,850	1,060,047
Mercury	208	20	188	611	66	545
Other nonferrous metals	1,878,665	1,583,333	295,332	3,363,217	4,504,083	(1,140,866)
Total	4,693,159	4,513,853	179,306	8,793,725	8,873,999	(80,274)
Mineral fuels	7,672,269	1,890,560	5,781,709	13,392,560	8,987,919	4,404,641

1/ Table prepared by Harold Willis, International Data Unit.

TABLE 3
UNITED KINGDOM: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995
(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aggregate	ARC Ltd. (Hanson PLC, 100%) Foster Yoeman Ltd.	50 quarries in various locations Glensanda quarry at Oban	50,000 15,000
Aluminum, primary	British Alcan Aluminium Ltd.	Fort William, Kinlochleven, and Lynemouth	175
Do.	Anglesey Aluminium Ltd. (RTZ Corp. Ltd. 51%; Kaiser Aluminum and Chemical Corp., 49%)	Holyhead, Wales	113
Aluminum, secondary	Trent Alloys Ltd. (Cookson Group, 100%)	North Cave, Humberside	30
Do.	Deeside Aluminium Ltd.	Clwyd, Wales	45
Ball clay	Watts, Blake, Bearne and Co. PLC	Various operations in north and south Devon	500
Celestite	Bristol Minerals Co. Ltd.	Yate, Avon	30
Cement	Aberthaw and Bristol Channel Portland Cement Co. Ltd	East Aberthaw, Glamorgan and Rhoose, Glamorgan	1,000
Do.	Blue Circle Industries PLC	Main plants at Coudon, Dunbar, Hope, Northfleet, Weardale, and Westbury	11,000
Do.	Castle Cement Ltd. (Aker Norcem AS, 50%; Indus AB Euroc, 50%;	Main plants at Ketton, Ribblesdale, Pades, and Pitstone	4,000
China clay (kaolin)	ECC Group PLC	Mines and plants in Devon	3,000
Coal	RJB Mining PLC	19 mines in various locations	40 1/
Copper	IMI Refiners Ltd.	Refinery at Walsall, West Midlands	80
Ferroalloys	British Steel PLC	Teesside, Cleveland	80
Do.	Murex Ltd.	Rainham, Essex	25
Do.	London and Scandinavian Metallurgical Co. Ltd.	Rotherham, South Yorkshire	30
Fluorspar	Weadale Fluorspar Ltd.	Mines in Derbyshire	50
Do.	Laporte Industries	Mill at Stoney Middleton, Mines in Derbyshire	70
Do.	British Gypsum Ltd.	Mines in Midlands, Cumbria and Sussex	3,500
Lead, refined	Britania Refined Metals Ltd.	Northfleet, Kent	165
Lead, secondary	H.J. Enthoven and Son Ltd. (Billiton (U.K.) Ltd., 100%)	Darley Dale, Derbyshire	60
Lead, smelter	MIM Holdings (U.K) Ltd.	Avonmouth, Avon	55
Natural gas	Amoco Ltd. British Petroleum Ltd. Esso (U.K.) Ltd., Phillips Petroleum Co. PLC, Shell (U.K.) Ltd.	North Sea gas fields	1,250 2/
Nickel, refined	INCO Europe Ltd. (INCO Ltd., Canada)	Clydach, Wales	30
Petroleum, crude	Amoco Ltd., British Petroleum Ltd., Chevron Ltd., Esso (U.K.) Ltd., Occidental Petroleum Co. Ltd., Shell (U.K.) Ltd., Texaco Ltd., Unocal, Inc.	North Sea oilfields	2.1
Petroleum, refined	British Petroleum Ltd., Conoco Ltd., Mobil Oil Co. Ltd., and others	11 refineries in various locations	2.3 3/
Platinum-group metals	Johnson Matthey PLC	Enfield (London) and Royston, Cambridgeshire	20
Potash	Cleveland Potash Ltd.	Boulby Mine, Yorkshire	500
Salt, rock	Imperial Chemical Industries PLC	Mines at Winsford, Chesire	3,000
Do.	Irish Salt Mining and Exploration Co.	Carrick Fergus, Northern Ireland	300
Sand and gravel	TMC Pioneer Aggregates Ltd.	Chelmsford, Essex	1,000,000
Silica, sand	Hepworth Minerals and Chemicals Ltd.	Operations in Cambridgeshire, Cheshire, Humberside and Norfolk	6,000
Steel	British Steel PLC	4 intergrated steelworks in Gwent, Lanark, South Humberside and Cleveland	16,800
Talc	Alex Sandison and Son Ltd.	Unst, Shetland Islands	15
Do.	Shetland Talc Ltd. (Anglo European Minerals Ltd., 50%; Dalriada Mineral Ventures Ltd. 50%	Cunningsburg, Shetland Islands	35
Tin, ore	Carnon Consolidated Tin Mines Ltd.	South Crofty Mine, Cornwall	1,800
Titanium, sponge	Deeside Titanium Ltd.	Plant at Deeside, Clyde	5
Zinc, smelter	MIM Holdings (U.K.) Ltd.	Avonmouth, Avon	120

1/ Million metric tons.

2/ Billion cubic feet per year.

3/ Million 42-gallon barrels per day.