

THE AUSTRALIAN MINERAL INDUSTRY

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THE
AUSTRALIAN MINERAL INDUSTRY

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Prepared in the MINERAL ECONOMICS SECTION.

Issued under the authority of
SENATOR the HON. W. H. SPOONER,
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Information of interest to the mineral industry, corrections to published data, and suggestions will be welcomed.

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AUSTRALIAN MINERAL INDUSTRY QUARTERLY REVIEW

AUGUST, 1959



DR. J. A. DUNN.

Dr. J. A. Dunn, Chief Mineral Economist, retired in July after 12 years service with the Bureau of Mineral Resources, Geology and Geophysics and it is appropriate to set down some notes concerning his varied and distinguished career.

Having completed a course in Mining Engineering at the Melbourne Technical College, he proceeded to the University of Melbourne and in 1919 graduated with a B.Sc., taking the Exhibition in geology in his final year, and Howitt Natural History Research Scholarship.

As Australian Metal Association Bursary Student he commenced his career as a mine surveyor with the Bendigo Amalgamated Goldfields Ltd. early in

1920. Whilst en route to a new post at Broken Hill late in that year he learnt of his appointment as Frecheville Research Fellow by the Imperial College of Science and Technology, London. Under this fellowship, Dr. Dunn carried out investigations at Mt. Bichhoff, Tasmania in late 1920 and early 1921 before proceeding to the United Kingdom to work in Cornwall and at the Imperial College, London; for this work he received the Diploma of the Imperial College.

Towards the end of 1921, Dr. Dunn was appointed to the Geological Survey of India and continued with that organisation until 1946. In the intervening 25 years he was appointed to various posts, attaining the position of Officiating

Director. In 1926 as a result of work undertaken with the G.S.I. he was awarded his Doctorate of Science by the University of Melbourne, at the age of 26.

During his 25 years in India, Dr. Dunn's work covered many parts of the country, his varied activity comprising both technical and administrative fields. As he has often remarked "it was a fascinating period in India, of political and scientific development, and a period of many and varied experiences, full of reminiscence which will be always with me."

On the technical side, his work covered all aspects of geology, ranging from geological field mapping, engineering geology and laboratory work, to other branches of the mineral industry, including investigations into production, treatment, utilisation and marketing of mineral raw materials. During leave periods he undertook research in Germany, Paris, London and the United States, and visited mines and treatment plants in various countries.

Based on his wide technical experience Dr. Dunn was called on to carry out many responsible administrative duties with the G.S.I. During the war he organised the Mica Production Section in Bihar and served on several Boards of the Government of India dealing with such subjects as industrial development, fuel research, chemical research, metallurgical research and training of scientists. He also served as Trustee of the Indian Museum, President of the Governing Body of the Indian School of Mines, and over two periods was part time Professor of Geology at the Presidency College, Calcutta University. Towards the end of his service with the Government of India he was largely responsible for the reorganisation of the G.S.I.

Increasingly his interests leaned towards mineral economics, and he was one of the small international group which wrote on this new study.

After his return to Australia, he was invited to accept the newly created post of Mineral Economist to the Bureau of Mineral Resources and following his appointment in 1947, organised the present Mineral Economics Section. The work of the Section includes the compilation of mineral statistics, investigations into the economics of the mineral industry, advice on such problems as taxation, tariffs, subsidies, trade in and general control of mineral and metals, on problems relating to mineral development, and on domestic and international policy of the industry.

Whilst with the Bureau, Dr. Dunn has visited every mining field in Australia, and has written widely on the mineral industry. He attended the U.N. International Tin Conference at Geneva in 1950 as Australian Delegate. Under invitation, he revisited India in 1956 as guest during the Jubilee Meeting of the Mining and Geological Institute of India.

His writings extend to over 100 volumes and papers on various aspects of the mineral industry, here and abroad.

During his long and distinguished career in the mineral industry Dr. Dunn was the recipient of many awards and honours in recognition of outstanding contributions in his field of work, including Honorary Member of the Australasian Institute of Mining and Metallurgy, conferred at the Jubilee Meeting of the Institute in 1943; President of the Mining, Geological and Metallurgical Institute of India, 1943, also Institute Medallist and Government of India Prize; President, Indian Science Congress, Geology, 1943.

On retirement from Government Service his many friends and colleagues wish to pay tribute to his work over the years, and trust that in future, no matter where his travels may take him, his wide and valuable experience will still be available to the industry.

J. M. RAYNER.

THE LEAD-ZINC QUESTION

As leading world producer of lead and third in the international zinc field, excluding the U.S.S.R., Australia has been vitally concerned with the important international developments of recent years affecting the world production and marketing of these metals. As the Australian mine producer is dependent on overseas markets for the disposal of approximately 85 per cent. of the lead production and 70 per cent. of zinc production, the level of prices in, and the degree of access to, these markets is of the greatest significance to the prosperity of the industry and its substantial contribution to overseas exchange earnings.

Since the beginning of 1958 stockpile purchases (both strategic and price support) by the U.S. Government from domestic lead and zinc production have ceased, the bartering of U.S. surplus agricultural products for foreign lead for stockpile was no longer possible in mid-1959 although offers of zinc were still being considered, imports of lead and zinc into the United States have been on a restricted basis since October, 1958, and in April, 1959, many of the principal world lead and zinc producers outside the United States indicated their intention voluntarily to limit production and/or commercial sales over the remaining months of that year.

In the period September, 1958, to May, 1959, three international conferences of countries with interests in world production and trade in these commodities were held successively in London (September, 1958), Geneva (November, 1958), and New York (April-May, 1959). The outcome of these meetings, held under the aegis of the Economic & Social Council of the United Nations, has been the decision to establish an international Lead-Zinc Study Group. At the meeting held in New York in May, 1959, draft rules of pro-

cedure and terms of reference were prepared and transmitted to interested Governments.

Short of a substantial improvement in world consumption to close the gap between production capacity and current level of demand, there can be no fully satisfactory solution to the problem of over-supply that has been overhanging the industry for some years. However, no matter what the eventual outcome of inter-governmental deliberations may be or whatever action may be taken by individual producers in an effort to solve the problem, it is opportune to review the background of the present situation.

An analysis of the history of events in the post-war years indicates quite clearly that the position in which the world industry finds itself today stems basically from abnormal market influences. The Korean War, the transition from bulk purchasing by the U.K. Government to trading on the London Metal Exchange, and the efforts of the U.S. Government to sustain domestic production at a relatively high level have all been influencing factors from time to time. In particular the United States action of indirectly supporting world prices in the period 1954/58 resulted in considerable benefit to producers in all countries, but, with that support withdrawn and the United States market virtually isolated from the rest of the world by import quotas, the position of other producing countries has further deteriorated, creating the problem that has yet to be resolved.

Before the 1939-45 war the United States, the world's largest individual consumer of these two metals, was virtually self-sufficient in both lead and zinc. To meet war-time requirements, substantial imports were necessary although domestic mine production of both metals was increased to levels above the immediate

pre-war period. In the post-war period consumption continued at relatively high levels and the short-fall in domestic supply necessitated the continuance of considerable imports.

Immediately before the commencement of hostilities in Korea in 1950, world production of lead and zinc had begun to move ahead of consumption and this was reflected in price movements at that time. In the face of rising costs, considerable concern was expressed in the United States, as relatively low cost metal from expanding production in other countries emerged as a serious competitor for a portion of the market that had been to that date catered for by domestic mines.

However, accelerated purchases for stockpiling and defence purposes reversed the situation and supplies of zinc in particular were in short supply, probably more so in the United Kingdom than in other countries. During the fourth quarter of 1951, the International Materials Conference commenced the allocation of zinc — lead however, was not brought under allocation.

Even up to early 1952 it was feared in some quarters that the United States might not be able to obtain adequate supplies of foreign lead and zinc. On 11th February, 1952, legislation was approved temporarily suspending the import duties on these metals. Almost immediately prices commenced to decline and acting on reports from the Tariff Commission that prices had fallen below the minimum specified (18 cents per pound for each metal), the President proclaimed the revocation of suspension of import duties, effective for lead on 26th June, 1952, and for zinc on 24th July. In mid-1952 the allocation of zinc by the I.M.C. was abandoned as the supply position eased.

Operations on the London Metal Exchange, which had been suspended in 1939, re-opened for lead on 1st October,

1952, and for zinc on 2nd January, 1953. Bulk purchases by the U.K. Government for distribution to consumers had been well in excess of disposals in the latter stages of the programme with a consequent rise of stocks. On resumption of open market trading, prices of both metals in the U.K. fell to lower levels with the U.S. price reacting accordingly.

Despite the reimposition of duties, imports into the U.S. rose to very high levels and producers in that country faced with a stagnant or declining overall consumption, were forced to restrict output — at the same time an appreciable accumulation of stocks occurred. From a maximum of 18 cents for lead and 9.5 cents for zinc in early 1952, the price fell to 12 cents for lead in April, 1953, and 9.25 cents for zinc in February, 1954.

These developments triggered off persistent demands for assistance from the U.S. domestic industry. In July, 1953, the U.S. Tariff Commission was directed to report on the industry, the outcome of which was a recommendation by the Commission to increase tariffs by 50 per cent on the 1945 level — this would have meant, in the case of pig lead and slab zinc, a tariff of 2.55 cents and 2.1 cents respectively compared with the then current rates of 1.16 cents and 7.10 cents respectively.

However, the President did not accept the recommendation of the Commission, but in August, 1954, initiated an expanded stockpiling programme to aid domestic producers. About the same time a programme under which foreign lead and zinc could be absorbed into a supplemental stockpile through the barter of surplus agricultural products was brought into being. At the time when it was decided to support domestic production by an increased stockpile intake, the hope was expressed that foreign producers

would not seek to take an unfair advantage of it.

With this guaranteed outlet for metal, stocks diminished both in the United States and the world generally, but notwithstanding the lift in price, United States mine production showed no appreciable gain. On the other hand, world production under the artificially supported price increased, part of which went to provide for increased consumption in other countries, but the overall world excess of production over consumption found its way into U.S. stockpiles.

This situation continued until early 1957 when it became known that the whole stockpiling policy of the United States Government was to be reviewed, and strategic and price support purchases of lead and zinc were to be discontinued in the near future. This of course brought an immediate market reaction; there was a steady down trend in prices and a rapid accumulation of stocks, particularly in the United States.

Stockpile buying of zinc was finally discontinued at the end of March, 1958, and for lead in June of that year. Coincident with the cessation of stockpile buying the lot of producers was further aggravated by severely reduced consumption concomitant with the decline in manufacturing activity — during 1958 overall lead

consumption in the U.S. was down 14 per cent, and zinc 12 per cent, on 1957 tonnages.

It became apparent that substantial tonnages of metal would be surplus to requirements, and, as stocks accumulated rapidly, there was some move by producers outside the United States to restrict production, but severe curtailments would have been necessary to bring any balance to the world picture. In the U.S., of course, production was heavily curtailed as many small high-cost producers were forced to cease operations completely — in 1958, production of lead was at its lowest point since 1899 and that of zinc since 1933.

There were many attempts during 1958 to bolster once again the position of the U.S. producers. Following an investigation of the industry late in 1957, the U.S. Tariff Commission reported in April, 1958, that imports of lead and zinc were causing serious injury to the domestic industry. However, the Commission was divided in its recommendation — the three Republican members recommending increased tariffs together with the introduction of quotas, whereas the three Democrat members recommended an increase in tariffs only. The detailed recommendations of the Commission were as follows:

	Present Rate (a)	Recommended by Democrats (b)	Recommended by Republicans (c)
Lead ores and concentrates ..	3/4 per cent lb. on lead content.	1 1/2 cents per lb. on lead content.	1 4/5 cents per lb. on lead content.
Refined lead, bullion, etc. ..	1 1/16 cent per lb. on lead content.	2 1/8 cents per lb. on lead content.	2 11/20 cents per lb. on lead content.
Zinc ores and cons.	3/5 cent. per lb. on zinc content.	1 1/2 cent per lb. on zinc content.	1 4/5 cent per lb. on zinc content.
Slab zinc	7/10 cent per lb.	1 3/4 cent per lb.	2 1/10 cents. per lb.

(a) Rates in effect pursuant to duty concessions granted by the U.S. in the G.A.T.T. (b) Originally enacted in Tariff Act, 1930. (c) Maximum permissible under escape clause action.

The quotas recommended by the Republican members were 50 per cent. of the average commercial imports in the base period 1953-57.

However, action was deferred and an alternative assistance scheme was proposed, providing guaranteed prices on domestic sales (up to 350,000 short tons

for lead and 550,000 short tons for zinc). This proposal was defeated in Congress in August, 1958.

With the position of the U.S. industry still in doubt, the first international meeting of Governments substantially interested in lead and zinc was held in London early in September. At this meeting the general propositions that there should be some curtailment in exports, and eventually production, and that a Lead-Zinc Study Group should be formed, were referred back to participating Governments for consideration.

Possibly because no immediate action had resulted from the London meeting satisfactory to U.S. producers, the U.S. Government announced late in September that as from the 1st October imports into the United States would be subject to quota. The quotas were assessed at 80 per cent. of the average annual U.S. commercial imports in the base period 1953-57. Quotas for lead and zinc and their relationships to the level of imports in 1957 are as follows:—

Lead

	Quota Calendar Year	Actual Imports 1957	% Variation of quota compared with 1957 Imports
Total lead content (a)	354,720	522,194	-32
In ore, concs, matte, etc.—			
Peru	32,320	55,450	-42
S. Africa	29,760	43,916	-32
Canada	26,880	25,193	+7
Australia	20,160	36,995	-45
Bolivia	10,080	18,319	-45
Other	13,120	9,329	-27
Total	132,320	197,831	-33
In pig lead, bullion, etc.—			
Mexico	73,760	102,504	-28
Australia	47,360	95,517	-50
Canada	31,840	28,607	+11
Yugoslavia	31,520	40,262	-22
Peru	27,760	35,083	-27
Others	12,160	22,306	-46
Total	222,400	324,279 (b)	-31

(a) All figures in short tons. (b) Excludes 14,106 tons in scrap, dross, etc. — countries of origin not specified.

Zinc

	Quota Calendar Year	Actual Imports 1957	% Variation of quota compared with 1957 Imports
Total zinc content (a)	520,960	794,764	-34
In ore—			
Mexico	140,960	192,519	-27
Canada	132,960	158,220	-16
Peru	70,240	118,771	-41
Others	35,680	56,220	-37
Total	379,840	525,730	-28
In slab zinc, dross, etc.—			
Canada	75,680	103,964	-27
Belgo-Luxemburg	15,040	34,191	-56
Mexico	12,640	23,536	-46
Belgian Congo	10,880	33,007	-67
Peru	7,520	22,947	-67
Italy	7,200	10,010	-28
Others	12,160	41,279	-71
Total	141,120	269,034	-48

(a) All figures in short tons.

The Australian lead quota represents a cut of approximately 50 per cent. on the level of exports to U.S. in 1957, the last year of the assessment period; over the base period exports to the U.S. had increased, and no credit was given for non-commercial exports, i.e., exports made under the barter stockpiling arrangements. On the other hand, because of relatively small shipments of zinc and zinc concentrates from Australia to the U.S., no specific zinc quota was allocated to Australia; to sell zinc in the United States, Australian producers have to compete in the "All Other Countries" quota with those having no specific allocation.

At Geneva in November, 1958, the replies of Governments to the London proposals were considered. Although there was no agreement on the question of controlled exports and or production, a majority decision was reached that the formation of a Lead-Zinc Study Group would be advantageous and it was agreed that the necessary steps should be taken to put this decision into effect.

An immediate consequence of the introduction of U.S. quotas was to lift prices of lead and zinc temporarily in world markets, and this no doubt influenced some countries to withhold any decision on inter-governmental controls. Furthermore, at about this time there was some positive indication that there was a definite improvement in the zinc position — at the low prices prevailing to mid-year it had been quite unprofitable for many producers to ship concentrates and there was a tendency to withhold supplies from the market; also, consumption of zinc began to revive and, with an upsurge in consumer buying, stocks commenced to fall. However, lead showed no material improvement and the upturn in prices was short lived.

With the position virtually unchanged into 1959, a further international meeting

was called in April. Immediately prior to and during this meeting, it was revealed that many producers had indicated their willingness to curtail production or commercial dealings in lead and zinc during the remainder of 1959. At the meeting, a statistical appraisal of the position in succeeding months of 1959, related to estimated consumption and production rates prior to the curtailments, indicated that the estimated excess of lead might be reduced to an annual rate in the second half of the year of 59,000 metric tons and zinc to 16,000 tons.

With the United States market virtually isolated by quotas, except in so far as manufactures of lead and zinc are not subject to quotas and present a possible means of defeating the object of the quotas, the voluntary restrictions have only allayed some fears of a substantial build-up of stocks at other market points. Of course if the only effect of the cuts is to build up stocks at centres of production rather than at consumption then the overall position will not be improved. It is fundamental that if consumption does not increase, then oversupply can only be corrected by cuts in actual production — no doubt the extent to which producers can continue to finance stocks or can accept low prices will determine that point in time when overall production will have to be geared to consumption rates either competitively or by agreement.

Recently market conditions in the United States have been overshadowed by the strike in the U.S. steel industry, the repercussions of which could affect consumption of both metals, but particularly of zinc. However, consumer purchases of both metals have materially improved in the light of better business conditions and stocks have fallen—prices, whilst somewhat firmer, are, nevertheless, still below what is considered desirable by domestic producers. As a consequence,

U.S. producers have renewed their claims for more effective assistance.

The greatly improved rate of zinc consumption in the U.S. if not significantly affected by the steel strike, might well result in further price gains towards the end of the year. On the other hand, the upturn in lead has been at a slower rate and, considering the great tonnage of lead stocks, it could be some time yet before the position becomes satisfactory to the U.S. producer. The effects of the strike which has closed a significant proportion of U.S. lead smelting capacity have yet to be evaluated. But if it is of long duration and if consumer industries maintain their recent level of activity, then, with the market isolated by quotas, there will be scope for an accelerated reduction of stocks.

It remains to be seen to what extent U.S. production, particularly of lead, can be increased in the event of higher prices. But having in mind the production level achieved some years ago when prices were of the order of those desired by

producers now, and also the fact that costs have since increased, it might well be that such prices are unrealistic. No doubt consumer interests in the United States will not be particularly enthusiastic in supporting a proportion of production which, in comparison to that of imported metal, is quite uneconomic.

On the assumption that a certain minimum level of production will be maintained in the United States, then those countries (including Australia) which are in a position to provide large tonnages of lead and zinc at competitive prices must, if their potential is to be fully realised, look for worthwhile increases in world consumption. Whether this can be achieved in a short period, particularly in the case of lead, may be doubtful but the recent decision of the major producers in all countries to accelerate research programmes with this in view could well supply the answer over the long term — in the short term there is little doubt that production capacity will continue in excess of demand.

ALUMINIUM.

Production of aluminium at Bell Bay increased during the first six months of 1959; total production was 6,597 tons and the plant is now operating at full capacity. Imports of aluminium in primary refinery shapes during the first three months were 3,013 tons, valued at £666,405, f.o.b.

With consumption being maintained at a much improved level, production of primary aluminium in the United States in the second quarter was at a record level of 486,500 short tons. Notwithstanding the substantial improvement in production, the industry is still operating somewhat below capacity; the production outlook in the immediate future is clouded by the possibility of strikes.

Meetings of union and industry representatives to negotiate a new wage contract commenced in July and the four largest aluminium producers, Alcoa, Kaiser, Reynolds and Ormet and the United Steelworkers Union agreed to ex-

tend present contract terms until 30 days after a steel industry settlement or until 1st November. At this date if there has been no aluminium agreement either side may terminate the present agreement on ten days notice. Alcoa reached much the same agreement with the Aluminium Workers International Union.

The Australian price of aluminium continues unchanged at £271 per ton, c.i.f. capital cities. Oversea, there has been no alteration in prices which, at the end of July, were quoted at: U.S. 24.7 cents per pound for pig and 26.8 cents per pound for ingot; Canada, 22.5 cents per pound, and U.K. £stg.180 per ton. There is, however, some indication that the price of metal in the U.S. will be increased in the near future as producers maintain that the differential between costs and price is particularly small — an increase in wages would strengthen the case of producers for increased prices.

ASBESTOS.

The rising trend of Australian asbestos production continued in the first quarter of 1959, with a total output for the period of 4,459 short tons compared with 2,884 tons for the same period in 1958. The main increase was in blue asbestos (crocidolite) from Wittenoom Gorge. Western Australia, production of which was 4,255 tons, the highest on record in a three-monthly period. Production of chrysotile at Baryulgil, N.S.W., has remained fairly constant.

Recorded exports of all types of asbestos in the first quarter were 1,065 short

tons, of which 1,037 short tons were crocidolite; actual crocidolite shipments were about 4,000 tons. Imports were 9,463 short tons, comprising 4,479 tons of chrysotile, 5,601 tons of amosite and 641 tons of other types of asbestos.

Production of asbestos cement manufactures, which accounts for the bulk of the domestic asbestos consumption, has remained at a relatively high level although a slight decline in recent months has been recorded. Demand is fairly strong, particularly for corrugated sheets used for industrial buildings.

COAL (BROWN).

Brown coal production in Victoria during the first quarter of 1959 was 2,706,421 tons, an increase of some 160,000 tons compared with the comparable quarter of 1958, but down 150,000 tons on the October-December period of 1958.

This decline in production is of a sea-

sonal nature only, and a substantial increase can be expected particularly in the second and third quarters. The total production for the year should be well above the 1958 record of 11,643,000 tons to meet Victoria's growing power and fuel requirements.

COAL (BLACK).

Output of black coal in Australia during the January-March quarter, 1959, was 4,466,890 tons, 2.14 per cent. less than in the corresponding period of 1958. The decrease was largely due to a fall in production in New South Wales, where several unmechanised mines closed during the period.

In June, 1959, the New South Wales State Cabinet announced that the number of hours worked by miners in State-owned

mines would be reduced from 40 to 37½ hours per week. As a result it is expected that operating costs in these mines will increase.

Exports of coal in the first quarter were 111,061 tons valued at £457,745, f.o.b. The average quarterly exports in 1957 and 1958 were 190,000 tons and 206,000 tons respectively. Exports in subsequent quarters of 1959 are expected to be at a higher level.

COPPER.

Mine production of copper in the first half of 1958 was running at a rate slightly in excess of 7,000 tons monthly. With a possible further increase in the rate in the remaining months of the year, the total production for 1959 should be of the order of 90,000 tons compared with 73,000 tons in 1958. Virtually the whole of the increase will have come from Mt. Isa.

Production of blister and refined copper of primary origin in the January-April period was 20,890 tons and 13,469 tons respectively.

With the substantial increase in mine production at Mt. Isa, smelter capacity at that centre has been exceeded temporarily, and until additional capacity is available the excess concentrate production is being exported. Based on current production and smelter capacity, exports of concentrate from Mt. Isa could attain an annual rate equivalent of approximately 15,000 tons of copper in concentrate.

At Townsville, Queensland, the recently completed copper refinery, with a capacity of some 40,000 tons annually, was brought into operation in June. Blister copper to be refined in this plant will be obtained from Mt. Isa — in the past, part of the production from that centre has been refined at Port Kembla and the balance exported.

With the Townsville plant now in operation the total Australian copper refining capacity will be in excess of current blister production and consequently exports of blister copper, which have been as high as 19,000 tons yearly, should be substantially reduced, if not completely eliminated, and be replaced by exports of refined metal. The extent to which any excess blister production from Mt. Isa will be treated in Australia will possibly be determined by internal marketing arrangements.

Early in July it was reported that Japanese interests may invest £200,000 in copper production at Ravenshorpe, Western Australia. Production by Ravenshorpe Copper N.L. has been at a rate of some 400 tons of concentrate monthly (100 tons of copper content) and with the additional capital it is proposed to increase concentrate production to 600 tons monthly. To date a large proportion of the production from this source has been exported to Japanese smelters.

The price of copper to domestic consumers is fixed on a weekly basis by the Copper Producers' Association and is related to that on the London Metal Exchange with adjustments for freight and other charges. Following the easing of prices in the U.K., the Australian price fell accordingly and for the week commencing 10th July, was £290 per ton, ex-

Port Kembla, the lowest price for the year. It had recovered to £298 by the first week in August.

On the London Metal Exchange the price of copper gradually eased during the second quarter of 1959, and on 10th July touched £84.209½, the lowest point since September, 1958. However, with the announcement of cutbacks in production by two of the leading world producers, there was some immediate recovery. Strikes in the U.S. in mid-August resulted in a further increase in price.

In the United States the domestic producers' price which had risen to 31.50 cents per pound early in March, was unchanged at that level until 14th July when it was reduced to 30 cents. On the other hand the customs smelters price, which had risen to 34 cents in March, had fallen in steps to 29.0 cents by mid-July, but was back to 29.5 cents within a few days; it was increased to 30 cents in mid-August following strike action in the U.S.

With world mine production running at record levels in 1959, the copper market had taken on a much easier appearance

with ample metal available. The much publicised threat of strike action on the U.S. fields, which affected consumer outlook in the early months of the year, had not materialised at the end of July and although consumption was maintained at quite a good level, stocks, particularly outside the United States had built up to significant proportions. Total stocks of refined metal as reported by the Copper Institute at the end of June were some 82,000 short tons above those at the end of 1958 but were still well short of the level reached in the early months of that year when the market was at its lowest point.

There is little doubt that if production continued at anywhere near the mid-1959 level a further deterioration of the producers' marketing position would occur. However, during July cutbacks in production were announced in the United States by Phelps Dodge Corporation and in Northern Rhodesia by the Rhodesian Selection Trust Ltd. Depending upon the duration of the copper strike in the U.S., the overall market outlook could substantially change in the weeks ahead.

GOLD.

level in the face of a further increase in costs.

Total subsidy payments received by gold producers since the inception of the Act in 1954 to April, 1959, have been £2,262,558.

Although there has been some relaxation of the conditions under which gold can be sold overseas by the Gold Producers' Association, exchange rates have been such that no sales have been made by the Association since December, 1958.

IRON AND STEEL.

Production of iron ore in the first quarter of 1959 was 973,178 tons, of which 834,271 tons were from South Australia and 138,907 tons from Western Australia. Imports from New Caledonia were 55,853

tons. The production of pig iron in the first and second quarters was 566,379 tons and 629,745 tons respectively, and steel production was 785,772 tons and 844,471 tons respectively.

Australia's largest blast furnace, the No. 4 blast furnace at Port Kembla, installed at a cost of £10 million, made its first cast early in June, 1959. This furnace increases Australia's pig iron capacity by approximately 600,000 tons annually. However, the full effect of this new unit on production will not be apparent until early 1961 as it is intended to recondition the older furnaces in the intervening period.

Preliminary data to hand at the end of June, 1959, indicate that mine production of lead in the first half of the year was some 153,000 tons. Production of refined lead and lead bullion in the period was 95,167 tons, and 25,910 tons; exports of lead concentrates (lead content), lead bullion and refined lead were 27,500 tons, 22,636 tons and 69,901 tons respectively.

At Mt. Isa production of bullion in 1959 will be somewhat lower than the record 57,575 tons established in 1958 — this reflects the action by the company in curtailing lead-zinc operations towards the end of 1958. Refined lead production at Port Pirie will also be lower, with sales significantly down following the decision announced in April to curtail commercial dealings during the second half of the year. Exports of lead concentrate in the second half of 1959 will also be cut.

Mt. Isa Mines Ltd. has announced its intention to proceed with the sinking of a new shaft as a further step in its major development programme. At present, the total ore production target (including copper) is 8,100 tons per day which should be achieved in the near future. When the new shaft comes into operation in about five years the rate will be stepped up to 14,400 tons daily — the capacity of the present and projected shaft will be such that further expansion of ore production will be possible. To handle this increased

In the United States production of steel has fallen from 90 per cent. of capacity to below 20 per cent., following strike action by workers in mid-July. By mid-August there was no indication as to the likely duration of the strike but in the meantime consumers have been able to maintain operations from accumulated stocks of steel products. Inventory purchases had been heavy in recent months in anticipation of strike action.

LEAD.

tonnage, additional milling and smelting capacity will also be provided.

The Australian price of lead, f.o.b. Port Pirie, remains unchanged at £100 per ton.

With ample supplies of lead available and no indication that the immediate months ahead will see any significant change in the position, the price of lead on the London Metal Exchange has moved within narrow limits around f5tg.70 per ton.

During the first four months of 1959 the consumption of lead in the United States was at a level approximately 8 per cent. above the overall level in 1958. Reported deliveries to fabricators in the second quarter were at greatly improved level, with a peak being achieved in May. With the United States market virtually isolated by quotas, a further reduction in stocks was achieved. As a result of the general improvement, the price of lead was increased from 11.5 cents to 12.0 cents early in May.

Mine production of lead in the United States during January-May, 1959, was at the rate of 257,000 short tons annually as against the 1958 total of 266,000 short tons; compared with the second half of 1958 production in the early months of 1959 was up approximately 2.5 per cent.

So far as U.S. domestic producers are concerned, the import restrictions, which have operated since 1st October, 1958,

have not produced the desired result, and further efforts are being made on behalf of the industry to ensure higher prices and a higher level of production. It has been claimed that with no restriction on imports of lead manufactures, quotas on concentrates, bullion, and refined metal are to a large extent ineffective — it is

MANGANESE.

Recorded production of manganese ore in the first quarter of 1959 was 18,659 tons of metallurgical grade and 148 tons of battery grade — the bulk of the production was from Western Australia.

Shipments of metallurgical grade ore from Western Australia to the steel industry in New South Wales were 12,804 tons.

Although no exports of ore were recorded in the Oversea Trade Statistics in the quarter, it is reported that there were two shipments to Japan totalling 4,043 tons — it is expected that these will be reported in the official statistics for the second quarter.

Imports of ferro-manganese in the first quarter were 1,065 tons.

The domestic price of metallurgical grade manganese ore is subject to negotiation between buyer and seller, the actual price depending on grade. As at the 1st July, 1959, the price of metallurgical grade ore, 45% Mn, was quoted nominally at £12 per ton, f.o.b. Geraldton. The price of battery grade ore remains at £25 per ton, f.o.b. N.S.W. railway sidings, for 75% MnO₂, Queensland ore, 75-80% MnO₂, £35 per ton, c. and f. Sydney.

In the United Kingdom, the manganese ore market continues quiet. Available supplies are adequate to meet demand and consumers' stocks are reported to be at a relatively high level. The price of

reported that the possibility of extending quotas to manufactured products is under investigation. Late in August a substantial proportion of U.S. smelting capacity was closed by strikes. With the U.S. market isolated by quotas, stocks could be substantially reduced if the strike is of long duration.

ore, 46-48% Mn, is quoted at 68d.-70d. per long ton unit, c.i.f. Towards the middle of the year, the U.K. price of dioxide grade ore was reduced from £37-45 nom. to £34-35 nom. for 85% MnO₂, c.i.f., and from £50-57 nom. to £45-50 nom. for 92-94% MnO₂, c.i.f. This was somewhat unexpected as supplies do not greatly exceed demand, even allowing for increasing shipments from China.

Immediately before the strike in the U.S. steel industry, most consumers in that country were reported to have been well placed with respect to supplies and with steel production running at 90 per cent. capacity no substantial increase in orders for manganese ore was expected. To what extent the strike will influence the manganese market remains to be seen, but if it is of long duration manganese ore producers are bound to be affected. Late in July the U.S. price was still quoted at \$87-\$90 per long ton unit, 46-48% Mn, c.i.f. U.S. ports, with duty extra.

The break-up of manganese ore and ferro-manganese which India is to supply the U.S.A. in a proposed barter deal for wheat has been announced by the Indian Parliament as follows:—

46-48% manganese ore	25,000 tons
42% manganese ore	150,000 tons
Standard ferro-manganese	75,000 tons

It is understood that no actual trading has taken place to date; prices are still under discussion.

MINERAL OILS.

Drilling for oil in Australia and Papua totalled about 23,750 feet during the second quarter of 1959.

Early in July, subsidies to three exploration companies, totalling £213,000, were announced by the Minister for National

Development, Senator Spooner. These grants under the Petroleum Search Subsidy Act, 1957-58, will cover half the cost of the proposed stratigraphic drilling programmes. The specific amounts of subsidy are: £48,000 to Australian Paper Manufacturers Ltd., for drilling at Rose-dale in Gippsland; £150,000 to Delhi-Australian Petroleum Ltd. for drilling at Be-toota in south-west Queensland; and £15,000 to Ex Oil Pty. Ltd. for drilling at two locations in the Eucla Basin, Western Australia.

Australasian Petroleum Co. Pty. Ltd. reported in mid-July that the second deviated hole at Puri No. 1B Well (Papua) had been deepened 1,269 feet in siltstone and mudstone to 7,354 feet. A seismic survey is in progress to the south of the well. At Bwata, 15 miles N.W. of Puri, erection of drilling equipment is nearing completion.

West Australian Petroleum Pty. Ltd. is carrying out a seismic survey in the Fitz-roy Crossing area. The survey crew is using both refraction and reflection methods in obtaining data which will be used in studies for future well locations.

Production of sulphuric acid was maintained at a rate of approximately 1,000,000 tons annually during the first quarter of 1959 with indigenous materials accounting for 52.3% of the total compared with 50.6% for the whole of 1958. Imports of elemental sulphur were 46,311 tons during the quarter.

There has been no change in world sulphur prices in recent months; prices are based on that for U.S., bright sulphur currently quoted at \$24-25 per ton, f.o.b.; continued low ocean freights are a con-

tributing factor towards cheap sulphur in those countries dependent upon imports. The Australian Pool price of sulphur was £17 5/- during the first quarter.

In order to restore balance between supply and demand, several major producers of elemental sulphur have had to cut production; at the end of the first quarter of 1959 it was reported that some 40-45 per cent. of world Frasch sulphur capacity was idle. World stocks of brimstone at the end of March, 1959, were estimated at 5.8 million tons.

In mid-July, Australian Oil and Gas Corp. Ltd., operating in the Sydney Basin, reported that the Mulgoa No. 2 well had been cased to 3,581 feet, and that Camden No. 9 well was set a depth of 1,370 feet in shale with a small show of gas at 1,346 feet.

In South Australia the Delhi-Fraser-Santos, Innamincka No. 1 well, was at a depth of 8,152 feet on 24th July — drilling is proceeding.

SULPHUR.

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TIN.

Mine production of tin in the first quarter of 1959 was 595 tons, of which Queensland and Tasmania accounted for 245 tons and 266 tons respectively. Production and imports of refined tin in the

period were 502 tons and 275 tons respectively.

With no significant fluctuation in the price of tin on world markets, the Australian price, which is determined by the

Singapore quotation, has moved within reasonably narrow limits in recent months. The maximum and minimum prices recorded in the May-August period were £1,076 per ton and £1,059 per ton respectively — these prices are on the basis of 5-ton lots delivered Sydney. The minimum buying price of tin concentrate, 70% tin, delivered Sydney, has been virtually unchanged at £84 per unit.

The price of tin on the London Metal Exchange continued to firm during the second quarter and on 30th June, was £179 1, the highest point for the year to that date. During July further small gains were recorded.

By and large the price of Straits tin on the Singapore market has maintained a slight premium above that on the L.M.E., however, in mid-July, the Singapore price reacted with the onset of the U.S. steel strike and dropped below £179.

Following the eighteenth meeting of the International Tin Council in Copenhagen on 26th-29th May, 1959, it was announced that the total permissible export quota for the tin producing members of the Agreement during the seventh control period, 1st July-30th September, 1959, had been raised to 25,000 tons compared with 23,000 tons for the previous period — the authority of the Buffer Stock manager to operate within the middle price range in the Agreement, £1760-£1830 per ton, was extended to the end of September.

During the meeting the Council and the U.K. Government agreed on arrangements for the disposal of 2,500 tons of tin from the U.K. stockpile, through the agency of the Buffer Stock manager. Subsequently it was announced that arrangements for the disposal of this tin would become effective on 1st July, 1959, and in disposing of this metal the Buffer Stock manager would operate under the same rules applying to sales from the Buffer Stock. Notice was also given by the U.K. that an additional 2,500 tons would be available for disposal as from 1st Janu-

ary, 1960. The release of this tin will complete the disposal of the U.K. Government stocks.

Under the articles of the Agreement the percentages of the total export quota allocated amongst producer members are reviewed annually with re-allocation of 5 per cent. of the total. As from 1st July, the percentages operative are as follows:—

	%
Belgian Congo and Ruanda-Urundi	9.05
Bolivia	19.40
Indonesia	18.90
Malaya	37.75
Nigeria	6.10
Thailand	8.80

With a significant improvement in world tin consumption and with the major producing countries subject to export quotas, the Buffer Stock manager has been able to reduce his holdings of metal. To what extent these stocks have been reduced is not known with certainty, but it is estimated in some quarters to have been approximately 50 per cent. of the 23,500 tons held at the time purchases ceased in addition metal purchased by the Special Fund was also sold — believed to have been about 4,500 tons.

Notwithstanding the further relaxation of export quotas and the metal now available from the disposal of U.K. stocks, it is estimated that there will still be a deficit between supplies of metal and consumption. This, of course, can be met by increasing quotas and by further sales by the Buffer Stock manager, but it remains to be seen how far this disposal will proceed at the recent level of prices.

The overall level of consumption will of course be determined by the duration of the U.S. steel strike, whilst estimates of metal available to the market may have to be revised according to exports by the U.S.S.R. So far in 1959 exports by the U.S.S.R. have been below the annual rate of 13,500 tons, a level at which the Government of that country indicated to the Tin Council it would consider limiting shipments in 1959.

TITANIUM.

Rutile. Production of rutile from the East Coast in the first quarter of 1959 was 18,600 tons compared with 20,768 tons and 17,974 tons in the first and last quarters of 1958. Shipments from Western Australia were 49 tons.

The market for rutile has shown no improvement and such spot sales as there have been were made at less than £30 per ton, f.o.b. In particular, the European market has been under pressure of sales on behalf of some American consumers from excess stocks accumulated in Australia.

The possibility of using rutile as the raw material for titanium pigment production is being investigated. With rutile at the current price level such a process might prove to be attractive. However, the determining factor is likely to be the anticipated relationship of ilmenite and rutile prices in the long term.

Ilmenite. Shipments of ilmenite concentrates from Western Australia for the first quarter of 1959 totalled 11,196 tons compared with 20,817 tons and 22,913 tons in the first and last quarters of 1958. Oversea markets remain highly competi-

tive and with domestic consumption currently running at about 22,000 tons annually, Australian producers are very dependent on world markets. Prices paid for Australian ilmenite continue at £4.5 per ton, f.o.b.

Titanium Metal. In the United States, production and consumption of titanium ingot was at a somewhat lower level in the first quarter of 1959, but, except for titanium sponge which was to a large extent affected by Government purchases prior to 1958, all segments of the industry were at a relatively higher level than in the corresponding quarter of 1958. In the January-July period, the price of titanium sponge, Grade A-1, was unchanged at \$1.82 per pound, and Grade A-2, \$1.70 per pound, although one producer was quoting \$1.82 per pound for sponge with a maximum Brinell hardness of 100. It has been announced by Du Pont that prices of A-1 grade and A-2 grade were reduced to \$1.60 and \$1.50 per pound respectively as from 1st August.

In the United Kingdom, Imperial Chemical Industries Ltd. cut prices of wrought titanium by as much as 25 per cent. towards the end of June.

TUNGSTEN.

With no improvement in the price of tungsten concentrates the only significant domestic production continued to be from the two Tasmanian producers, Aberfoyle Tin N.L. and Storey's Creek Tin Mining Co. N.L. Total Australian production of tungsten concentrates in the first quarter of 1959 was 188 tons (65% WO₃) and exports, 26 tons; comparable figures in the same period of 1958 were 421 tons and 480 tons respectively.

There appears to be some immediate prospect of worthwhile increase in the price of tungsten concentrates

— during the first seven months of 1959 wolfram has ranged between stg.84 - and 103.6 per unit—as the tone of the market has been somewhat firmer, following the purchase of a substantial quantity of concentrate by U.S. buyers from European stocks. Furthermore, only small quantities of concentrate have been forthcoming from Bolivia and Korea in recent months—persistent offerings from these sources has been an important factor in keeping prices at a low level. It is believed that producers in both these countries are now stockpiling concentrate.

ZINC.

Although official mine production data for the first half of 1959 are not yet available, preliminary information to hand at the end of June indicates that production for the period was some 115,500 tons compared with 126,500 tons in the corresponding period of 1958.

Production of refined zinc in the January-June period was 56,630 tons and it seems likely that the total for the year will be about the level of the 1958 record, 114,773 tons.

Domestic sales in the first six months of the year were 36,891 tons, about the same as in 1958; with the demand for zinc in overseas markets quite firm there has been no difficulty in disposing of all zinc available for commercial sales.

In the period 22nd December, 1958, to 30th June, 1959, the domestic price of zinc was fixed at £100 per ton, f.o.b., Risdon. However, with the improvement in the price overseas the Australian price since 1st July has been based on the daily L.M.E. quotation as formerly. During August the price rose to £109 per ton.

During the second quarter of 1959, the zinc market firmed considerably and on the London Metal Exchange the price reached £stg.80 per ton late in June. This improvement has since been maintained and the price rose to £86 in mid-

ZIRCON.

Production of zircon concentrates from the East Coast was 16,616 tons in the first quarter of 1959, compared with 11,743 tons and 17,394 tons in the first and last quarters of 1958. Shipments from Western Australia totalled 429 tons.

Exports of zircon concentrates for the first quarter of 1959 rose to 23,183 tons valued at £277,069 compared with 17,764 tons (£209,956) and 20,070 tons (£236,952) in the first and last quarters of 1958. The price of zircon remains firm at £13.14 per ton, f.o.b.; £15 per ton for high grade material has been reported.

August. No doubt the decision by many major producers to withhold metal from the market in the second half of the year has been a contributing factor, but the position has also been strengthened by an improvement in demand generally.

In the United States, sales of zinc have been at a substantially improved level and stocks held by producers in that country, which had reached very high levels in mid-1958, were reduced considerably. Despite the improved outlook the price has been held at 11 cents per lb.; it is probable that in the absence of the U.S. steel strike an increase to 12 cents would have occurred.

Notwithstanding the improvement in the zinc market, an improvement that may yet be affected in the short term by the U.S. steel strike, producers in the U.S. continue to press for additional assistance. In July, a bill was introduced in the Senate to the effect that a tariff of 4 cents per pound should operate when the domestic price fell below 13.5 cents. At this stage it seems doubtful if such a move will be successful in the light of quota restrictions now operating, the improvement in domestic production since the quotas became effective, and the voluntary restrictions undertaken by major world producers outside of the United States.

If the present demand for zircon is maintained, there seems little doubt that all zircon production in the current year will be marketed without difficulty. Present prices will enable producers to profitably extract zircon from stockpiled beach sand concentrates where these are available. However, where production is directly dependent on that of rutile no worthwhile increase in output can be expected until there is some recovery in rutile prices.

The growing diversity of sources of supply and the large Australian production capacity, ensure there will be no scarcity of the mineral.

METAL AND MINERAL PRICES

MONTHLY AVERAGE BASE METAL PRICES

	Aust.	U.K. Stg.	U.S.A. (a)	Aust.	U.K. Stg.	U.S.A. (a)
COPPER						
May	\$309/ 6/8	\$236/ 4/1	31.50	\$100/- /-	\$70/16/-	11.90
June	\$310/ 5/5	\$230/- /11	31.50	\$100/- /-	\$69/13/4	12.00
July	\$292/ 3/6	\$220/17/6	30.48	\$100/- /-	\$70/ 5/-	12.00
ZINC						
May	\$100/- /-	\$77/ 7/1	11.00	\$1.059/ 8/7	\$784/ 4/3	103.04
June	\$100/- /-	\$78/ 8/2	11.00	\$1.066/10/6	\$788/ 7/9	104.35
July	\$101/ 9/8	\$80/10/7	11.00	\$1.064/ 8/11	\$792/ 6/6	102.38

MAXIMUM AND MINIMUM SPOT METAL PRICES, 1st MAY, 1959-31st JULY, 1959.

	Max.	Min.	Max.	Min.	Max.	Min.
	Australia		U.K. Stg.		U.S.A. (a)	
Copper	\$318/- /-	\$290/- /-	\$244/ 2/6	\$209/ 7/6	31.50	30.00
Lead	\$100/- /-	\$100/- /-	\$72/18/9	\$68/ 7/6	12.00	11.50
Zinc	\$103/12/6	\$100/- /-	\$80/13/9	\$73/15/-	11.00	11.00
Tin	\$1,072/- /-	\$1,058/- /-	\$793/15/-	\$782/15/-	105.00	101.63

METAL PRICES AS AT 4th AUGUST, 1959.

	Australia	U.K. Stg.	U.S.A. (a)
Aluminium	(e)\$271 per ton. (d)\$225 per ton nom.	\$180 per ton.	(f)\$22.50.
Antimony	(i)\$335 per ton.	(i)\$197½ per ton.	(j)\$32.59.
Bismuth	\$1/10/3 per lb.	16/- per lb.	\$2.25.
Cadmium	14/3 per lb.	9/- per lb.	\$1.20.
Cobalt	—	14/- per lb.	\$1.75.
Copper	(b)\$298 per ton	\$226/2/6 per ton.	(c)\$30.0.
Gold, per fine oz.	\$15/12/6.	\$12/9/10½.	\$35.
Lead	\$100 per ton.	\$70/7/6 per ton.	12.00.
Mercury	—	\$75 per flask.	\$234-236 per flask.
Nickel	7/7¼ per lb.	\$600 per ton.	(g)\$70.00.
Pig Iron	\$21/10/- per ton.	\$20/18/3 per ton.	\$66-67 per ton.
Silver, per fine oz.	8/2¼.	6/6½.	91.375 cents.
Platinum, per fine oz.	—	U.K. and Empire refined £28½. Imported £23½-27½.	\$76-78.
Tin	(h)\$1,060 per ton.	\$793/15/- per ton.	101.875.
Zinc	\$104 per ton (electro).	\$82/11/3 per ton (g.o.b.).	11.00 (Prime Western).

(a) Cents per lb. unless otherwise stated. (b) Price ex smelters, Port Kembla. (c) Domestic. (d) Foreign. (e) Domestic 1-20K ingots, 99.5% c.i.f. capital cities. (f) Canadian price f.o.b. Toronto. (g) Canadian price f.o.b. Port Colborne. (h) 5 ton lots, delivered Sydney. (i) 99.6% Sb. (j) 99.5% Sb.

ORE AND CONCENTRATE PRICES AT 1st AUGUST, 1959.

	Australia	U.K. Stg.	U.S.A.
Antimony	28/6 per unit 60% Sb.	19/6 - 20/6 per unit 60% Sb.	\$250-310 per s. ton unit 60-65% Sb. Nom.
Beryl (α)	\$15/9/- per unit. Min. 10% BeO.	210/- - 220/- per unit f.o.b. min 10% BeO.	\$46-48, f.o.b. mine, domestic, imported c.i.f. Atlantic ports per s. ton unit 10-12% BeO. \$31-50-\$33.00 Nom.
Bismuth	7/- per lb. metal content 65% concentrate.	8/6 per lb. metal content 65% concentrate.	—
Chromium Ore	Nom.	\$15/15/- per ton, 48% metallurgical ore c.i.f. 3:1 ratio.	Rhodesian ore long ton, f.o.b. cars New York, 48% Cr ₂ O ₃ , 3:1 ratio, \$35-36 (nom.), 48% Cr ₂ O ₃ , no ratio, \$26-28 (nom.).
Columbite-Tantalite	—	65% combined oxides, high grade c.i.f. 160/-165 - nom.	\$110-115 per lb. pentoxide, 10:1 ratio.
Manganese Ore	Metallurgical Ore £12 f.o.b. Geraldton Battery grade £25 per ton at rail, N.S.W. railway siding for 75% MnO ₂ . Queensland ore, battery grade, 75-80%, £35 per ton c. & f. Sydney.	70/- per unit, 46-48% ore c.i.f. European ports.	\$67 - 90 per long ton unit 46-48% ore, c.i.f. U.S. ports, duty extra.
Molybdenum Ore	Nom.	8/11 per lb. metal, c.i.f. 85% MoS ₂ cons.	\$1.25 per lb. contained Mo, f.o.b. mines.
Monazite cons.	By negotiation with the Aust. Atomic Energy Com.	—	—
Rutile	\$25-30 per ton, nom.	\$28-30 per ton 95-97% TiO ₂ cons. c.i.f. Nom.	\$85 per s. ton of 94% TiO ₂ cons.
Ilmenite	\$4-5 per ton, f.o.b. Bunbury.	\$7-7¼ per ton 52-54% TiO ₂ c.i.f.	\$23.00 - 26.00 per ton f.o.b. Atlantic ports 59.5% TiO ₂ .
Tantalite	—	\$321-35 per unit, 65% Ta ₂ O ₅ , c.i.f.	—
Tin	\$81-9 per unit of contained metal delivered Sydney.	—	—
Tungsten	110/- - 116/- per unit, f.o.b.	94/6-99/6 per unit, c.i.f.	\$12-12.25 per s. ton foreign. Duty \$7.93 extra.
Zircon	\$13-15 per ton 66-67% ZrO ₂ cons. f.o.b.	\$16-17 per ton 66-67% ZrO ₂ cons. c.i.f.	\$50 per long ton, c.i.f. 65% ZrO ₂ cons.

(a) A.A.E.C. buying price delivered to stores, Perth, Adelaide, Sydney.

Note: Some Australian ore prices are nominal and are subject to negotiation between the producer and purchaser.

The ore and concentrate prices quoted above will vary according to grade and, in many cases, to the size of the ore parcel.

Copper Ore.

Australia: The price paid for ores is related to the market price of copper, less charges listed below. The basis of price determination is variable, details are obtainable from individual smelters.

Company	Draughtage Deduction or Copper Content Deduction	Receiving, Sampling, Assaying & Smelting Charge per ton of ore	Converting, Refining, Realising Charge per unit of copper paid for.	Gold Refining Charge per oz. of gold paid for.	Silver Refining Charge per oz. of silver paid for.
ERS. (1)	1.3 unit of copper per ton of ore.	£7/7/6	11/6	15/-	4/5
Mt. Isa. (2)	1.3 unit of copper per ton of ore.	£5/5/-	14/-	No payment for gold and silver.	
Mt. Morgan (3)	1% of weight of ore plus 1.3 units of copper per ton of ore.	£6/-/-	20/-	17/-	5/-
(4)					

(1) The Electrolytic Refining and Smelting Company of Australia Pty. Ltd., Port Kembla, N.S.W.

(2) Mt. Isa Mines Ltd., Mt. Isa, Queensland.

(3) Mt. Morgan Ltd., Mt. Morgan, Queensland.

(4) Mt. Morgan gold and silver deductions:—Gold, deductions range from 1 dwt./ton for 10 dwt./ton and lower grade or to 1 dwt./ton plus 5% of the balance for 120 dwt./ton and over ore; silver, 1 oz./ton plus 10% of the balance.

INDUSTRIAL MINERAL PRICES AS AT 1st AUGUST, 1959.**Asbestos.**

W.A. Crocidolite, export price, f.o.b. Fremantle.
£98/110 per short ton according to quantity.

Barite.

Crude: £11 per ton, f.o.r. Hawker, South Australia.
Ground: £13/10/- to £45/13/- per ton, according to grade, f.o.b. Sydney.

Fluorspar.**Buying.**

90% CaF₂ f.o.b. Mungana, Queensland—£11/2/6 per ton.
85% CaF₂ f.o.b. Mungana, Queensland—£9/17/6 per ton.

Selling.

90% CaF₂ delivered Sydney—£29 to £31/10/- per ton.
85% CaF₂ delivered Sydney—£27 to £29/10/- per ton.

Gypsum.**Selling.**

In bulk f.o.r. Conoble, N.S.W.—42/- per ton.

Mica.—Current price schedule obtainable on application to the Commonwealth Mica Fac. 203 Collins Street, Melbourne.

Sillimanite.**Selling.**

£6/5/- f.o.r. Broken Hill.
£11/4/6 f.o.b. Port Adelaide.

**Commonwealth Bureau of Census and Statistics,
Canberra, Australia**

**THE
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PART 2 — QUARTERLY STATISTICS

QUARTER ENDED 31st MARCH, 1959.

Prepared under instructions from the Right Honorable the Treasurer

by

S. R. CARVER

Commonwealth Statistician.

PREFACE

Statistics included in this Part relate to Australian production of and overseas trade in minerals and mineral products. In the main, the data relating to mineral production consist of official statistics of Mines Departments of the several States and of the Northern Territory Mines Branch. These statistics have been supplemented as necessary by data obtained from the Bureau of Mineral Resources, including information collected by that Bureau from mines and treatment plants.

The fundamental provision of the uniform plan evolved in 1950 for standardization of Australian mineral production statistics is that quantities and values of individual minerals produced should be reported in terms of the products in the form in which they are dispatched from the locality of each mine. This involves the inclusion in the mining industry of ore-dressing and elementary smelting of metallic minerals (e.g., in the case of gold) and miscellaneous treatment of non-metallic minerals where these operations are carried out in an associated plant at or near the mine. For example, in the case of a metal mine, the output is recorded as ore when no treatment is undertaken at the mine or as a concentrate where ore-dressing operations are carried out in associated works in the locality of the mine.

The particulars of quantities of minerals produced shown in Table 4 have been compiled on this basis as far as practicable. This has evolved some re-arrangement of official statistics published by Mines Departments for certain States. Actual output of the mineral product (as defined in the preceding paragraph) has generally been reported, but in some cases it has been necessary to include dispatches from the mine (or sales) as distinct from production in deriving the total for Australia. In addition to the basic quantity data, particulars of contents of metallic minerals have been shown in detail in Tables 4 and 5 and in summary form in Table 6. In general, the particulars of content of metallic minerals represent total contents (as determined by assay) for each metal which is a "pay metal" or "refiners' prize" when present in the particular mineral. The data in Table 4 exclude construction materials (sand, gravel, building stone, etc.), and some particulars for non-metallic minerals which are not at present available. In Table 6 particulars of producing States as well as totals for Australia are shown.

Principally because of time lags in treatment of a number of important metallic minerals, it has been found impracticable, under Australian conditions, to obtain satisfactory information as to the value of minerals produced, on a **quarterly basis**. Statistics of (i) value of output and of production of the mining and quarrying industries, (ii) value of individual minerals produced, (iii) value of imports and of exports of principal minerals and mineral products on a **calendar year basis**, and (iv) value of smelter and refinery production on a **fiscal year basis**, appear as a supplement to the first issue of this Bulletin each year.

In the presentation of the tables the following terms and symbols have been used:—

ton:	long ton of 2,240 lb.	(—):	nil.
short ton:	ton of 2,000 lb.	(.):	less than half the unit shown.
unit:	22.4 lb.	(n.a.):	not available.
*	subject to revision.	(†):	estimated or partly estimated.

All tables in this publication omit particulars relating to uranium bearing minerals.

I extend my thanks to State Departments of Mines, Statisticians of the several States, and the Bureau of Mineral Resources who have supplied information used in the preparation of this Bulletin.

S. R. CARVER,
Commonwealth Statistician

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I. SUMMARY TABLES

TABLE 1 — MINE PRODUCTION OF PRINCIPAL MINERALS: AUSTRALIA.

Mineral	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
Metallic contents—							
Copper	ton	41,241	46,192	53,737	57,175	72,568	21,013
Lead	"	284,862	295,944	299,485	333,264	327,368	70,674
Zinc	"	252,659	256,564	278,082	291,582	263,044	52,682
Tin	"	2,075	2,017	2,078	1,952	2,237	595
Gold	'000 f. oz.	1,118	1,049	1,030	1,084	1,100	259
Silver	"	13,827	14,555	14,586	15,739	16,270	3,751
Iron (a)	'000 tons	42,274	42,304	42,543	42,466	42,544	4,630
Manganese ore—							
Metallurgical (Mn. cont.)	ton	12,718	20,462	25,856	34,904	25,623	8,549
Battery and other (MnO ₂ cont.)	ton	644	1,378	1,464	1,239	2,818	123
Rutile (TiO ₂ content)	"	43,011	57,232	93,242	124,863	80,953	18,107
Ilmenite (TiO ₂ content)	"	230	262	2,260	38,888	38,391	6,081
Tungsten concentrates (WO₃ content)							
	ton	1,372	1,462	1,582	1,409	850	122
Black coal	'000 tons	19,763	19,275	19,274	19,919	20,442	4,467
Brown coal	"	9,331	10,112	10,560	10,741	11,644	2,706

(a) Excludes iron content of iron oxide not intended for metal extraction.

TABLE 2 — SMELTER AND REFINERY PRODUCTION OF PRINCIPAL METALS: AUSTRALIA.

(Excludes secondary metal (i.e., metal recovered from scrap) unless otherwise specified).

Metal	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
Aluminium (refined)	ton	—	(a) 1,248	9,143	10,624	10,889	3,248
Cadmium (refined)	"	288	301	276	393	353	71
Copper (blister) (b)	"	38,047	37,439	49,030	50,403	64,608	14,271
Copper (refined) (c)	"	29,287	28,148	29,307	32,880	43,276	9,869
Gold (refined)—							
Australian origin	'000 f. oz.	1,063	1,055	1,044	1,078	1,070	234
Total	"	1,253	1,222	1,205	1,250	1,207	273
Lead—							
Refined (d)	ton	200,409	187,134	194,506	192,161	191,474	46,109
Lead cont. of lead-silver bullion for export	ton	38,146	37,392	41,658	46,891	57,171	14,393
Total	"	238,555	224,526	236,164	239,052	248,645	60,502
Pig iron (e)	'000 tons	1,856	1,798	2,074	2,208	2,276	566
Steel ingots (e)	"	2,211	2,201	2,539	3,020	3,156	786
Silver (refined)	'000 f. oz.	8,474	7,818	8,232	8,011	9,101	2,050
Tin (refined)	ton	2,063	2,004	1,850	1,806	2,121	502
Zinc (refined slab) (f)	"	104,523	101,090	104,993	110,348	114,773	27,605

(a) Production commenced September. (b) Total production for refining in Australia and overseas. (c) Excludes quantities refined from 500 tons of blister copper imported in 1954. (d) Includes lead content of antimonial lead. (e) Includes recovery from scrap. (f) Includes small quantities of metal recovered from zinc dust used in works.

Note: Particulars of refined aluminium, cadmium, copper, lead, silver, tin and zinc in Table 2 were collected by the Bureau of Mineral Resources.

TABLE 3 — SUMMARY OF PRODUCTION, IMPORTS AND EXPORTS OF PRINCIPAL MINERALS AND MINERAL PRODUCTS: AUSTRALIA.

(Note: Particulars of production of refined metals exclude secondary metal (i.e., metal recovered from scrap) unless otherwise specified).

Particulars	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
ALUMINIUM (Tons).						
Production—						
Bauxite (Al ₂ O ₃ content)	2,440	3,406	4,618	3,758	3,533	942
Alumina	—	(a) 4,134	16,803	20,116	22,490	5,482
Refined aluminium	—	(b) 1,248	9,143	10,654	10,869	3,248
Imports—						
Bauxite (Al ₂ O ₃ content)	—	10,640	21,229	24,956	38,419	17,211
Refined aluminium (c)—						
Ingot	10,421	14,861	10,223	8,374	14,813	3,013
Rolled, drawn and extruded shapes (d)	1,908	3,312	2,700	2,797	2,827	639
Foil	1,691	1,987	1,938	2,193	2,409	692
Powder	299	348	564	531	486	182
Exports—						
Refined aluminium (c)—						
Ingot	—	—	4	762	—	—
Rolled, drawn and extruded shapes (d)	48	50	30	83	135	9
COPPER (Tons).						
Production—						
Copper content of minerals produced	41,241	46,192	53,737	57,175	72,568	21,013
Blister copper (e)	38,047	37,439	43,030	50,403	64,608	14,271
Refined copper (f)	29,287	28,148	29,307	32,680	43,276	9,869
Imports of refined copper—						
Ingot	14,409	21,303	250	4,251	659	155
Rolled, drawn and extruded shapes (d)	3,070	4,215	2,033	2,031	2,289	276
Exports—						
Copper content of ores, concentrates, matte, etc.	2,469	3,963	6,580	6,973	7,272	3,063
Copper-lead dross	4,803	7,974	7,698	7,633	7,709	2,172
Blister copper	9,789	8,159	15,574	19,131	14,471	10,702
Refined copper—						
Ingot	14	2	1,002	1	—	—
Rolled, drawn and extruded shapes (d)	392	468	1,581	1,216	1,365	75
GOLD (Fine oz.)						
Production—						
Gold content of minerals produced	1,117,742	1,049,039	1,029,821	1,083,941	1,100,404	259,090
Refined gold—						
Australian origin	1,063,457	1,054,714	1,044,164	1,078,419	1,069,774	233,867
Overseas origin	189,913	167,547	161,065	171,970	136,998	36,996
Total refined gold	1,253,370	1,222,261	1,205,229	1,250,389	1,206,772	272,863
Imports—						
Bullion, other crude forms	211,018	150,606	201,871	159,938	160,232	26,310
Refined gold	—	—	12	—	—	—
Exports—						
Gold content of ores and concentrates	10,231	15,244	18,177	19,561	22,453	3,174
Bullion, other crude forms	502	15,957	42	—	—	—
Refined gold	568,230	1,120,618	530,968	783,814	128,550	77,553
Industrial absorption	52,346	35,953	37,052	42,887	37,748	9,488
Change in stocks of gold held in Australia (g)	+697,451	+11,873	+645,465	+397,677	+1,071,885	+195,185

(a) Production commenced February. (b) Production commenced September. (c) Includes aluminium-base alloys. (d) Excludes wire. (e) Total production for refining in Australia and overseas. (f) Excludes quantities refined from 500 tons of blister imported in 1954. (g) Excludes specie; includes gold content of change in stocks of minerals awaiting refining.

TABLE 3 — SUMMARY OF PRODUCTION, IMPORTS AND EXPORTS OF PRINCIPAL MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Continued).

Particulars	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
IRON AND STEEL (Tons).						
Production—						
Iron content of iron ore	2,274,330	2,304,165	2,542,826	2,465,523	2,544,462	630,415
Pig iron (a)	1,856,013	1,797,533	2,074,467	2,208,140	2,276,154	566,379
Ingot steel (a)	2,210,611	2,200,555	2,539,061	3,020,209	3,156,227	785,772
Blooms and slabs	1,947,366	1,986,731	2,190,689	2,560,539	2,817,958	720,510
Thinplate	—	—	—	(b) 14,819	68,002	20,636
Imports—						
Iron content of iron ore	111	21	7,729	111,656	162,886	430,725
Ferro-alloys	5,885	12,467	15,137	14,579	13,335	5,219
Angles and tees	34,803	53,440	28,369	4,684	4,023	2,502
Structural steel	n.a.	89,730	54,134	12,574	10,592	6,407
Bars and rods	21,900	109,446	55,890	17,860	24,798	2,376
Hoop and strip	13,387	70,730	29,117	15,077	15,354	3,241
Thinplate	127,300	145,938	120,917	144,199	66,098	21,709
Plate and sheet (plain)	69,952	122,710	37,808	15,404	15,918	2,582
Exports—						
Pig iron	33,736	44,892	16,420	15,330	18,303	4,503
Ingot steel	26,561	1,747	2,327	2,327	728	123
Blooms, blooms and slabs	20,541	9,729	16,842	21,595	28,588	6,441
Bars and rods	3,182	2,246	4,138	8,160	5,786	2,097
Plate and sheet—						
Plain	14,990	11,946	61,070	143,629	85,444	41,020
Galvanized	11,997	7,242	38,484	86,378	58,938	8,782
Scrap	64,387	74,476	105,123	178,255	156,930	44,916
LEAD (Tons).						
Production—						
Lead content of minerals produced	284,862	295,944	299,485	333,264	327,368	70,674
Smelter production—						
Refined lead (c)	200,409	187,134	194,506	192,161	191,474	46,109
Lead content of lead-silver bullion for export	38,146	37,392	41,658	46,891	57,171	14,393
Total lead content	238,555	224,526	236,164	239,052	248,645	60,502
Exports—						
Lead content of ores, concentrates, etc.	45,261	43,830	54,818	70,736	64,582	8,963
Lead content of lead-silver bullion	35,894	38,231	37,923	47,241	57,661	15,405
Refined lead—						
Pigs	159,328	145,874	149,051	160,589	155,730	36,844
Rolled and extruded shapes (except wire, leaf and foil)	1,224	86	82	182	99	42
Antimonial lead	109	235	159	345	109	50
Scrap	13,680	12,125	10,708	8,372	5,152	566
MANGANESE ORE (Tons).						
Production—						
Metallurgical grade ore	27,335	45,343	57,329	75,214	55,536	18,659
Battery (incl. other) grade ore	867	2,013	2,055	1,796	4,147	160
Imports—						
Metallurgical grade ore	89	30	20	—	44	—
Battery grade ore	1,110	3,129	2,010	2,049	1,144	1,005
Exports—						
All grades of ore	n.a.	2	2	30,061	18,399	—

(a) Includes recovery from scrap. (b) Production commenced August. (c) Includes lead content of antimonial lead.

TABLE 3 — SUMMARY OF PRODUCTION, IMPORTS AND EXPORTS OF PRINCIPAL MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Continued).

Particulars	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
SILVER ('000 fine oz.).						
Production—						
Silver content of minerals produced	13 827	14 555	14 586	15 739	16 270	3 751
Refined silver	8 474	7 818	8 232	8 011	9 101	2 050
Imports—						
Bullion and other crude forms	104	69	102	77	75	9
Exports—						
Silver content of ores and concentrates	1 943	1 907	2 163	2 477	2 564	481
Silver content of lead-silver bullion produced for export	2 909	3 319	3 519	4 098	4 596	1 241
Refined silver	7 418	5 942	16 444	3 672	4 676	770
Unrefined bullion & matte	14	72	148	12	—	—
TIN (Tons).						
Production—						
Tin content of minerals produced	2 075	2 017	2 078	1 952	2 237	595
Refined tin	2 063	2 004	1 850	1 806	2 121	502
Imports—						
Refined tin, excl. leaf and foil	571	506	516	1 218	1 070	275
Exports—						
Tin content of ores, concentrates, etc.	19	132	63	134	30	33
Refined tin, excl. leaf and foil	94	98	24	21	11	1
TITANIUM (in terms of TiO₂) (Tons).						
Ilmenite						
Production	230	262	2 260	38 888	38 391	6 081
Imports	†8 292	†5 396	†7 800	†2 265	—	—
Exports	†79	†213	†598	†20 665	†30 717	†2 200
Rutile						
Production	43 011	57 232	93 242	124 863	80 953	18 107
Exports	†42 778	†57 303	†86 569	†115 321	†73 462	†17 133
TUNGSTEN (WO₃ content) (Tons).						
Scheelite						
Production	861	960	990	950	478	—
Exports	755	886	897	907	341	14
Wolfram						
Production	511	522	592	459	372	122
Exports	537	605	551	454	319	62
ZINC (Tons).						
Production—						
Zinc content of minerals produced	252 659	256 564	278 082	291 582	263 044	52 682
Refined slab zinc (a)	104 523	101 090	104 993	110 348	114 773	27 605
Exports—						
Zinc content of ores, concentrates, etc.	151 313	128 256	143 452	178 078	146 231	16 940
Refined zinc—						
Ingot and other refinery shapes	38 262	33 902	31 594	37 092	37 938	6 139
Plates, sheets, circles and strips	3 744	2 204	2 283	1 561	1 090	177
Scrap	609	816	527	414	332	159

(a) Includes small quantities of metal recovered from zinc dust used in works.

TABLE 3 — SUMMARY OF PRODUCTION, IMPORTS AND EXPORTS OF PRINCIPAL MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Continued).

Particulars	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
COAL ('000 Tons).						
Production—						
Black coal—						
Semi-anthracite	74	82	81	71	57	11
Bituminous	17 848	17 610	17 681	18 229	18 616	4 070
Sub-bituminous	1 841	1 583	1 512	1 619	1 769	386
Total black coal	19 763	19 275	19 274	19 919	20 442	4 467
Underground	16 773	16 959	17 124	17 888	18 377	4 099
Open cut	2 990	2 316	2 150	2 031	2 065	368
Brown coal (lignite)	9 331	10 112	10 560	10 741	11 644	2 706
Imports—						
Coal	3	4	5	9	6	—
Coke (incl. petroleum coke)	7	4	3	15	9	—
Exports—						
Coal	377	202	239	759	824	111
Coke	23	33	88	182	52	—
SULPHURIC ACID AND SULPHUR (Tons).						
Production of sulphuric acid (mono-tons)	778 008	895 765	841 225	971 976	1 009 064	248 373
Sulphur in sulphuric acid (mono-) from—						
Sulphur (elemental)	154 337	187 015	146 816	156 413	162 881	38 730
Zinc concentrate	33 564	30 412	29 061	35 025	38 524	9 670
Lead concentrate	—	—	16 090	18 272	21 339	4 900
Pyrite	62 533	71 179	76 780	100 111	99 216	25 745
Spent oxide	3 973	4 295	4 643	4 744	4 301	933
Other materials	—	—	1 694	3 271	3 702	1 240
Total sulphur content	254 407	292 901	275 084	317 836	329 963	81 218
Imports—						
Sulphur (elemental)	187 916	195 482	202 977	120 277	202 421	46 311
ASBESTOS (Short tons of 2,000 lb.).						
Production—						
Chrysotile	1 029	969	1 549	2 232	2 255	204
Crocidolite	4 249	5 025	8 160	12 438	13 313	4 255
Imports—						
Chrysotile	28 734	31 003	18 344	22 873	23 408	5 601
Crocidolite	346	116	65	165	311	—
Amosite	8 819	13 508	10 644	10 322	13 984	3 221
Other	56	165	525	528	1 185	641
Exports—						
Chrysotile	1 891	73	40	378	173	2
Crocidolite		7 253	7 579	10 892	10 049	1 037
Amosite		20	101	59	143	26
Other		—	—	—	—	—

II. DETAILED TABLES

TABLE 4 — QUANTITIES AND CONTENTS (OR GRADE) OF MINERALS PRODUCED:
AUSTRALIA.

Mineral	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
METALLIC MINERALS.							
Antimony ore	ton	177	446	1	2	2	—
Antimony content	ton	94	248	1	1	1	—
Gold content	f. oz.	2	—	—	—	—	—
Antimony concentrate	ton	45	204	545	850	1,114	283
Antimony content	ton	23	266	464	691	917	175
Bauxite	ton	5,487	7,563	10,329	7,707	6,909	1,801
Al ₂ O ₃ content	ton	12,440	3,406	4,618	3,758	3,533	942
Beryllium ore	unit	149	206	318	395	247	19
Beryllium content	unit	1,723	2,428	3,768	4,567	2,900	222
Bismuth concentrate	lb.	3,976	—	1,232	—	3,310	—
Bismuth content	ton	1,393	—	620	—	2,328	—
Chromite	ton	4,943	—	6,096	3,049	776	120
Cr ₂ O ₃ content	ton	2,094	—	2,624	1,420	386	60
Copper ore (a)	ton	7,915	20,552	26,127	14,739	13,082	4,652
Copper content	ton	672	2,048	2,552	1,586	1,028	425
Gold content	f. oz.	10	—	1,511	122	—	—
Silver content	ton	49	—	—	—	—	—
Copper concentrate	ton	190,955	198,648	211,627	228,534	287,681	82,588
Copper content	ton	36,657	40,218	46,927	50,680	66,607	19,451
Gold content	f. oz.	97,202	68,800	65,216	81,325	84,157	25,688
Silver content	ton	1,069,590	854,673	1,015,160	1,009,564	1,157,237	275,746
Lead content	ton	2,845	2,171	2,355	2,719	2,844	555
Copper precipitate	ton	165	182	134	557	1,536	310
Copper content	ton	96	104	77	406	998	237
Gold content	f. oz.	—	—	—	—	310	—
Silver content	ton	—	—	—	—	38	—
Gold ore	ton	—	2	—	10	3	22
Gold content	f. oz.	—	4	—	36	22	11
Gold concentrate	ton	102	169	107	949	1,855	293
Gold content	f. oz.	324	539	298	1,917	4,109	939
Silver content	ton	357	433	219	356	492	—
Copper content	ton	—	—	—	—	—	—
Gold—other forms (b)	oz.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Gold content	f. oz.	1,007,323	966,693	950,319	986,677	995,712	228,942
Silver content	ton	245,334	210,899	205,169	193,319	197,127	41,238
Ilmenite concentrate	ton	469	535	4,274	71,155	70,295	11,196
TiO ₂ content	ton	230	262	2,260	38,888	38,391	6,081
Iron ore	ton	3,518,804	3,572,609	3,923,985	3,805,473	3,925,524	973,178
Iron content	ton	12,274,330	12,304,165	12,542,826	12,455,523	12,544,462	1630,415
Iron oxide	ton	—	—	—	—	—	—
For gas purification	ton	3,515	5,328	6,479	5,338	2,864	947
For cement manufacture	ton	6,453	7,400	9,126	9,759	6,093	2,556
For coal washing	ton	1,795	183	—	4	25	—
Lead-silver ore	ton	1,905	23,483	20,121	12,464	5,182	162
Lead content	ton	627	3,357	3,990	2,656	1,301	89
Silver content	f. oz.	27,398	587,387	474,629	384,779	76,483	5,861
Gold content	ton	5	—	—	—	15	—
Lead-silver-zinc ore	ton	279	—	—	—	58	—
Lead content	ton	93	—	—	—	18	—
Silver content	f. oz.	2,118	—	—	—	—	—
Zinc content	ton	74	—	—	—	20	—
Lead concentrate	ton	452,447	484,941	475,731	497,404	492,908	107,860
Lead content	ton	275,955	283,701	286,020	320,319	316,048	68,698
Silver content	f. oz.	11,838,567	12,291,854	12,241,159	13,475,649	14,200,130	3,307,932
Gold content	ton	9,302	9,556	10,777	10,675	11,590	2,642
Antimony content	ton	614	615	616	724	664	136
Cadmium content	ton	67	69	69	76	74	15
Copper content	ton	3,241	3,224	3,462	3,770	3,270	766
Sulphur content	ton	n.a.	n.a.	83,512	86,823	89,142	19,753

(a) Includes cupreous ore for fertilizer. (b) Bullion, alluvial, retorted gold, etc.

TABLE 4 — QUANTITIES AND CONTENTS (OR GRADE) OF MINERALS PRODUCED:
AUSTRALIA—(Continued).

Mineral	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
METALLIC MINERALS—(Continued).							
Manganese ore	ton	27,335	45,343	57,329	75,214	55,536	18,659
Metallurgical grade	ton	12,718	20,462	25,856	34,904	25,623	8,549
Manganese content	ton	867	551	692	767	974	148
Battery grade	ton	644	403	528	571	705	114
MnO ₂ content	ton	—	1,462	1,363	1,029	3,173	12
Other grades	ton	—	975	936	668	2,113	9
MnO ₂ content	ton	1,904	6,328	224	6,160	10,080	784
Molybdenite concentrate	lb.	11,620	15,381	1190	15,236	18,566	1666
MoS ₃ content	ton	79	164	102	141	454	20
Monazite concentrate	ton	71	149	93	132	423	19
Monazite content	ton	16	21	25	66	42	—
Osmiridium, native	oz.	32	8	26	26	28	—
Platinum concentrate	ton	23	7	18	17	22	—
Platinum content	ton	2	—	—	—	—	—
Osmidium content	ton	—	—	—	—	—	—
Palladium content	ton	—	—	—	—	—	—
Gold content	f. oz.	2	—	—	—	—	—
Pyrite ore	ton	14,248	11,143	12,629	—	—	—
Sulphur content	ton	5,023	3,978	4,444	—	—	—
Pyrite concentrate	ton	192,530	217,521	171,859	229,125	226,744	54,583
Sulphur content	ton	92,626	103,746	82,343	109,026	108,637	26,164
Rutile concentrate	ton	44,659	59,613	96,816	128,903	83,326	18,649
TiO ₂ content	ton	43,011	57,232	93,242	124,863	80,953	18,107
Tantalite-columbite concentrate	lb.	117,767	27,139	159,655	50,035	13,507	—
Ta ₂ O ₅ + Nb ₂ O ₅ content	ton	60,346	15,454	85,690	23,499	6,736	—
Tin concentrate	ton	2,975	2,890	2,923	2,867	3,128	833
Tin content	ton	2,075	2,017	2,078	1,952	2,237	595
WO ₃ content	ton	—	—	—	—	—	—
Copper content	ton	—	—	—	7	—	—
Tungsten concentrates	ton	1,331	1,449	1,495	1,449	733	—
Scheelite	ton	861	960	990	950	478	—
WO ₃ content	ton	722	788	877	857	517	167
Wolfram	ton	511	522	592	459	372	122
WO ₃ content	ton	—	2,800	4,500	1,344	—	—
Bismuth content	lb.	—	—	—	—	—	—
Zinc concentrate	ton	483,774	482,549	530,777	556,763	503,751	99,834
Zinc content	ton	252,585	256,564	278,082	291,582	263,024	52,682
Lead content	ton	5,342	6,715	7,120	7,570	7,155	1,332
Silver content	f. oz.	643,664	610,117	648,350	675,650	638,674	120,609
Gold content	ton	3,582	3,447	3,210	3,309	4,487	868
Cadmium content	ton	836	775	853	903	798	164
Cobalt content	ton	69	61	59	68	71	14
Copper content	ton	575	598	719	5,877	5,680	1,137
Manganese content	ton	4,696	4,719	5,293	177,529	160,976	32,008
Sulphur content	ton	152,074	155,836	168,714	177,529	190,970	17,043
Zircon concentrate	ton	41,453	48,673	72,458	88,561	58,747	16,871
Zircon content	ton	40,920	48,209	71,769	87,703	—	—

FUEL MINERALS

Black coal—	'000 tons	74	82	81	71	57	11
Semi-anthracite	ton	17,848	17,610	17,681	18,229	18,616	4,070
Bituminous	ton	1,841	1,583	1,512	1,619	1,769	386
Sub-bituminous	ton	—	—	—	—	—	—
Total black coal	ton	19,763	19,275	19,274	19,919	20,442	4,467
Brown coal (lignite)	ton	9,331	10,112	10,560	10,741	11,644	2,706

TABLE 4 — QUANTITIES AND CONTENTS (OR GRADE) OF MINERALS PRODUCED:
AUSTRALIA—(Continued).

Mineral	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
NON-METALLIC (Excluding Fuel) MINERALS.							
Asbestos—							
Chrysotile, fibre and lines	short ton	1,029	969	1,549	2,232	2,255	204
Crocidolite, fibre	ton	4,249	5,025	8,160	12,438	13,313	4,255
Barite	ton	6,872	6,264	6,009	9,778	6,802	899
Clays—							
Bentonite	ton	1,122	647	1,404	856	123	—
Bentonitic clay	ton	189	138	63	73	30	—
Brick clay and shale	"	‡3,518,819	‡3,556,188	‡3,426,329	‡3,531,140	‡3,829,263	‡876,098
Cement clay and shale (a)	ton	146,703	166,872	153,098	141,433	163,808	4,675
Damouritic clay	"	514	436	472	650	482	—
Fireclay, n.o.i.	"	127,131	119,846	145,895	179,394	160,308	6,618
Fuller's earth	"	73	71	235	215	120	—
Kaolin (incl. ball clay)	"	41,253	45,054	41,089	43,486	37,099	1,691
Stoneware clay	"	110,852	183,809	123,267	111,999	119,680	—
Tile clay (a)	"	150,184	142,945	190,179	145,386	143,760	—
Other clays (a)	"	138,091	117,804	114,227	124,678	149,451	35,184
Corundum	"	—	9	—	—	—	—
Diamonds, industrial	carat	1,564	731	363	312	158	—
Diatomite	ton	5,438	5,042	5,789	6,223	4,240	980
Dolomite	"	127,994	111,417	115,564	192,103	158,148	38,054
Emery	"	—	8	—	—	—	—
Felspar (inc. Cornish stone)	ton	16,384	20,833	18,629	8,819	7,016	1,304
Fluorspar (fluorite)	ton	19	282	745	700	946	—
Average grade	% CaF ₂	70	72	n.a.	85	85	—
Garnet concentrate	ton	—	85	85	70	36	13
Gems—							
Opal	Value £A	73,411	73,550	124,626	184,949	216,266	—
Sapphire	"	636	3,412	691	20	1,813	—
Emerald	"	313	—	—	—	—	—
Glauconite	ton	258	197	85	126	112	16
Graphite—							
Flake	ton	—	22	1	—	—	—
Average grade	% Carbon	—	85	86	—	—	—
Amorphous	ton	70	—	9	—	—	—
Average grade	% Carbon	40	—	80	—	—	—
Gypsum	ton	439,716	470,014	467,484	478,435	504,938	120,996
Limestone (incl. shell & coral)	'000 tons	3,459	3,998	4,264	4,572	5,490	1,082
Loam, for foundry moulding (a)	ton	16,351	18,283	17,399	16,967	21,505	—
Magnetite, crude	"	43,152	57,674	64,685	83,473	69,371	13,838
Mica, muscovite—							
Trimmed	lb.	84,619	56,649	28,837	36,713	31,391	—
Crude and film	"	—	—	—	—	35,840	—
Scrap	"	80,864	20,160	—	40,600	26,768	—
Mineral pigments—							
Red ochre	ton	435	351	390	60	252	33
Yellow ochre	"	161	57	118	47	31	—
Other	"	16	—	—	—	—	—
Peat, for fertiliser	"	—	—	—	—	—	—
Pebbles, for grinding	"	624	791	698	747	970	163
Perlite	"	—	—	339	—	300	—

(a) Incomplete; figures relate only to production reported by Mines Departments.

TABLE 4 — QUANTITIES AND CONTENTS (OR GRADE) OF MINERALS PRODUCED:
AUSTRALIA—(Continued).

Mineral	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
NON-METALLIC (Excluding Fuel) MINERALS—(Continued).							
Petalite	ton	15	—	—	—	68	—
Li ₂ O content	unit	62	—	—	—	285	—
Phosphate rock	ton	6,120	6,371	6,788	11,430	7,421	—
Pyrophyllite	"	184	266	339	358	267	23
Salt	"	379,143	369,323	408,689	427,600	429,534	—
Serpentine, for refractories	ton	758	927	910	781	965	—
Silica (glass, chemical etc.) (a)	ton	133,958	121,268	142,489	149,339	145,483	4,001
Sillimanite	"	2,337	2,679	2,181	2,302	1,696	1,648
Slate, for filler	"	204	369	150	105	15	—
Spodumene	"	—	4	—	—	—	—
Li ₂ O content	unit	—	27	—	—	—	—
Talc (incl. steatite)	ton	12,940	12,657	13,035	14,360	15,393	3,746
Vermiculite	"	—	—	1	—	—	—

(a) Incomplete; figures relate only to production reported by Mines Departments.

TABLE 5 — CONTENTS OF METALLIC MINERALS PRODUCED: AUSTRALIA.

Mineral in which contained	Contents of Metallic Minerals Produced					
	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
ALUMINA (Al₂O₃) (Tons).						
Bauxite	‡2,440	3,406	4,618	3,758	3,533	942
ANTIMONY (Tons).						
Antimony ore	94	248	1	1	1	—
Antimony concentrate	23	59	286	484	691	175
Lead concentrate	614	615	616	724	664	136
Total	731	922	903	1,209	1,356	311
BERYLLIUM OXIDE (BeO) (Units of 22.4 lb.).						
Beryllium ore	1,723	2,428	3,768	4,567	2,900	222

TABLE 5 — CONTENTS OF METALLIC MINERALS PRODUCED: AUSTRALIA—(Contd.).

Mineral in which contained	Contents of Metallic Minerals Produced					
	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
BISMUTH (lb.).						
Bismuth concentrate	1,393	—	4,620	—	2,328	—
Wolfram concentrate	—	2,800	4,500	1,344	—	—
Total	1,393	2,800	5,120	1,344	2,328	—
CADMIUM (Tons).						
Lead concentrate	67	69	69	75	74	15
Zinc concentrate	836	775	853	903	798	164
Total	903	844	922	979	872	179
CHROMIC OXIDE (Cr.O) (Tons).						
Chromite	2,094	—	2,624	1,420	386	60
COBALT (Tons).						
Zinc concentrate	69	61	59	68	71	14
COPPER (Tons).						
Copper ore (a)	672	2,048	2,552	1,586	1,028	425
Copper concentrate	36,657	40,218	46,927	50,680	66,607	19,451
Copper precipitate	96	104	77	405	998	237
Gold concentrate	—	—	—	—	—	—
Lead concentrate	3,241	3,224	3,462	3,770	3,270	765
Tin concentrate	—	—	—	7	—	—
Zinc concentrate	575	598	719	726	665	134
Total	41,241	46,192	53,737	57,175	72,568	21,013
GOLD (Fine oz.).						
Antimony ore	2	—	—	—	—	—
Copper ore	—	—	—	—	—	—
Copper concentrate	—	—	1	1	—	—
Copper precipitate	97,202	68,800	65,216	81,325	84,159	25,688
Gold ore	—	—	—	—	—	—
Gold concentrate	324	539	—	36	310	11
Gold—other forms (b)	1,007,323	966,693	298	1,917	4,109	939
Lead-silver ore	5	—	950,319	986,677	995,712	228,942
Lead concentrate	9,302	9,556	10,777	10,675	11,590	2,642
Platinum concentrate	2	—	—	—	—	—
Zinc concentrate	3,582	3,447	3,210	3,309	4,487	868
Total	1,117,742	1,049,039	1,029,821	1,083,941	1,100,404	259,090

(a) Includes cupreous ore for fertilizer. (b) Bullion, alluvial, retorted gold, etc.

TABLE 5 — CONTENTS OF METALLIC MINERALS PRODUCED: AUSTRALIA—(Contd.).

Mineral in which contained	Contents of Metallic Minerals Produced					
	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
IRON (Tons) (a).						
Iron ore	†2,274,330	†2,304,165	†2,542,826	†2,465,523	†2,544,462	†630,415
LEAD (Tons).						
Copper concentrate	2,845	2,171	2,355	2,719	2,844	555
Lead-silver ore	627	3,357	3,990	2,656	1,303	89
Lead-silver-zinc ore	93	—	—	—	18	—
Lead concentrate	275,955	283,701	286,020	320,319	316,048	68,698
Zinc concentrate	5,342	6,715	7,120	7,570	7,155	1,332
Total	284,862	295,944	299,485	333,264	327,368	70,674
MANGANESE (Tons).						
Manganese ore — metallurgical grade	12,718	20,462	25,856	34,904	25,623	8,549
Zinc concentrate	4,696	4,719	5,293	5,877	5,680	1,137
Total	17,414	25,181	31,149	40,781	31,303	9,686
MANGANESE DIOXIDE (MnO₂) (Tons).						
Manganese—Battery grade	644	403	528	571	705	114
Other grades	—	975	936	668	2,113	9
Total	644	1,378	1,464	1,239	2,818	123
MOLYBDENUM DISULPHIDE (MoS₂) (lb.).						
Molybdenite concentrate	†1,620	†5,381	†190	†5,236	†8,538	†666
MONAZITE (Tons).						
Monazite concentrate	71	149	93	132	423	19
OSMIRIDIUM (oz.).						
Osmiridium, native	16	21	25	66	42	—
Platinum concentrate	2	—	—	2	1	—
Total	18	21	25	68	43	—
PALLADIUM (oz.).						
Platinum concentrate	—	—	—	—	—	—
PLATINUM (oz.).						
Platinum concentrate	23	7	18	17	22	—

(a) Excludes iron content of iron oxide not intended for metal extraction.

TABLE 5 — CONTENTS OF METALLIC MINERALS PRODUCED: AUSTRALIA—(Contd.).

Mineral in which contained	Contents of Metallic Minerals Produced					
	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
SILVER (Fine oz.).						
Copper ore	10	49	1,511	122	—	—
Copper concentrate	1,069,590	854,673	1,015,160	1,009,564	1,157,237	275,746
Copper precipitate	—	—	—	—	38	—
Gold concentrate	357	433	219	356	492	—
Gold—other forms (a)	245,334	210,899	205,169	193,319	197,127	41,238
Lead-silver ore	27,399	587,387	474,629	384,779	76,483	5,861
Lead-silver-zinc ore	2,118	—	—	—	—	—
Lead concentrate	11,838,567	12,291,854	12,241,159	13,475,649	14,200,130	3,307,932
Zinc concentrate	643,664	610,117	648,350	675,650	638,674	120,609
Total	13,827,038	14,555,412	14,583,197	15,739,439	16,270,181	3,751,386
SULPHUR (Tons).						
Lead concentrate	na	na	83,512	86,623	89,142	19,753
Pyritic ore	5,023	3,978	4,444	—	—	—
Pyrite concentrate	92,626	103,746	82,343	109,026	108,637	26,164
Zinc concentrate	152,074	155,836	168,714	177,529	160,976	32,008
Total	249,723	283,560	339,013	373,378	358,755	77,925
TANTALITE-COLUMBITE (TaO + NbO) (lb.).						
Tantalite-columbite concentrate	60,348	15,454	85,690	23,499	6,736	—
TIN (Tons)						
Tin concentrate	2,075	2,017	2,078	1,952	2,237	595
TITANIUM DIOXIDE (TiO) (Tons).						
Ilmenite concentrate	230	262	2,260	38,888	38,391	6,081
Rutile concentrate	43,011	57,232	93,242	124,863	80,953	18,107
Total	43,241	57,494	95,502	163,751	119,344	24,188
TUNGSTIC OXIDE (WO) (Tons).						
Scheelite concentrate	861	930	990	950	478	—
Tin concentrate	—	—	—	—	—	—
Wolfram concentrate	511	522	592	459	372	122
Total	1,372	1,452	1,582	1,409	850	122
ZINC (Tons).						
Lead-silver-zinc ore	74	—	—	—	20	—
Zinc concentrate	252,585	256,564	278,082	291,582	263,024	52,682
Total	252,659	256,564	278,082	291,582	263,044	52,682
ZIRCON (Tons).						
Zircon concentrate	40,820	48,209	71,769	87,703	58,747	16,871

(a) Bullion, alluvial, retorted gold, etc.

TABLE 6 — PRINCIPAL CONTENTS OF METALLIC MINERALS AND QUANTITIES OF ASBESTOS AND COAL PRODUCED: STATES AND AUSTRALIA

Content and States	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
PRINCIPAL CONTENTS OF METALLIC MINERALS PRODUCED.							
Antimony	ton	731	922	503	1,209	1,356	311
N.S.W.		697	850	879	1,208	1,355	311
Victoria		3	3	1	1	1	—
Q'land		8	10	—	—	—	—
W. Australia		23	59	23	—	—	—
Copper	ton	41,241	46,192	53,737	57,175	72,568	21,013
N.S.W.		3,182	3,492	4,289	4,382	4,023	869
Victoria		—	—	—	—	—	—
Q'land		27,207	30,738	34,898	33,705	47,364	15,686
S. Australia		—	—	—	—	—	—
W. Australia		380	699	740	788	1,107	168
Tasmania		9,880	8,394	8,807	10,984	11,413	1,980
N. Territory		592	2,889	5,002	7,313	8,630	2,306
Gold	'000 f. oz.	1,118	1,049	1,030	1,084	1,100	259
N.S.W.		32	30	29	31	19	3
Victoria		53	38	39	46	41	8
Q'land		98	64	56	63	71	25
S. Australia		—	—	—	—	—	—
W. Australia		862	834	814	850	875	204
Tasmania		19	17	17	20	22	4
N. Territory		54	66	75	74	72	15
Iron (a)	'000 tons	12,274	12,304	12,543	12,466	12,544	1,630
S. Australia		11,864	11,979	12,332	12,203	12,179	1,542
W. Australia		410	325	211	263	365	88
Lead	ton	284,862	295,944	299,485	333,264	327,368	70,574
N.S.W.		230,392	234,854	236,319	266,328	246,696	52,470
Victoria		—	—	—	—	—	—
Q'land		41,424	48,814	43,104	50,780	64,819	15,112
S. Australia		14	2	17	20	13	—
W. Australia		1,497	1,007	5,828	3,087	1,854	498
Tasmania		11,533	11,267	12,217	12,445	13,786	2,594
N. Territory		2	—	—	—	—	—
Silver	'000 f. oz.	13,827	14,555	14,586	15,739	16,270	3,751
N.S.W.		8,680	8,823	9,289	9,969	8,992	1,811
Victoria		3	2	2	3	3	1
Q'land		3,584	4,363	3,724	4,274	5,655	1,614
S. Australia		1	—	1	186	189	41
W. Australia		238	201	193	1,299	1,395	274
Tasmania		1,166	1,373	1,373	5	35	10
N. Territory		4	—	—	—	—	—
Tin	ton	2,075	2,017	2,078	1,952	2,237	595
N.S.W.		272	270	269	211	239	—
Victoria		26	2	—	—	—	—
Q'land		770	770	630	772	1,019	245
W. Australia		80	119	240	182	94	47
Tasmania		947	853	939	777	893	266
N. Territory		20	3	1	10	2	—
Titanium (in terms of TiO₂)—							
In Rutile Concentrate	ton	43,011	57,232	93,242	124,863	80,953	18,107
N.S.W.		21,872	33,034	62,470	83,363	44,915	9,889
Q'land		21,139	24,198	30,772	41,500	35,755	8,171
W. Aust.		—	—	—	—	283	47
In Ilmenite Concentrate	ton	230	252	2,260	38,888	38,391	6,081
N.S.W.		228	230	481	485	59	—
Q'land		2	32	—	78	—	—
W. Aust.		—	—	1,779	38,325	38,332	6,081

(a) Excludes iron content of iron oxide not intended for metal extraction.

TABLE 6 — PRINCIPAL CONTENTS OF METALLIC MINERALS AND QUANTITIES OF ASBESTOS AND COAL PRODUCED: STATES AND AUSTRALIA—(Continued).

Content and States	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar 1959*
PRINCIPAL CONTENTS OF METALLIC MINERALS PRODUCED—(Continued).							
Tungsten (in terms of WO)	ton	1,372	1,482	1,582	1,409	857	—
In Scheelite							
Conc.	ton	861	960	950	950	478	—
N.S.W.		6	7	2	1	—	—
Qland.		—	—	3	—	—	—
W. Aust.		3	5	—	—	—	—
Tasmania		852	948	985	948	477	—
In Wolfram							
Concentrate	ton	511	522	592	459	372	122
N.S.W.		2	1	2	—	—	—
Qland.		38	51	46	19	5	—
Tasmania		420	389	443	391	360	122
North. Ter.		51	81	101	49	7	—
Zinc	ton	252,659	256,564	278,082	291,582	263,044	99,834
N.S.W.		202,646	211,478	229,126	241,509	211,667	81,741
Qland.		19,615	17,138	16,231	19,536	17,484	5,489
S. Australia		—	—	7	97	113	—
W. Australia		74	—	—	—	20	—
Tasmania		30,324	27,948	32,718	30,440	33,760	12,604

QUANTITIES OF ASBESTOS AND COAL PRODUCED

Asbestos							
Chrysotile	short ton	1,029	969	1,549	2,232	2,255	204
N.S.W.		690	661	697	676	712	186
W. A.		339	308	852	1,556	1,543	38
Crocidolite	short ton	4,249	5,025	8,160	12,438	13,313	4,255
W. A.		4,249	5,025	8,160	12,438	13,313	4,255
Black coal	'000 tons	19,763	19,275	19,274	19,919	20,442	4,467
Semi-anthracite	'000 tons	74	82	91	71	57	11
Qland.		73	80	79	69	55	11
Tasmania		1	2	2	2	2	—
Bituminous	'000 tons	17,848	17,610	17,681	18,222	18,616	4,070
N.S.W.		15,036	14,720	14,793	15,376	15,841	3,424
Victoria		141	133	119	112	108	22
Qland.		2,378	2,460	2,472	2,393	2,393	561
Tasmania		263	297	297	266	274	63
Sub-bituminous	'000 tons	1,841	1,583	1,512	1,619	1,769	386
N.S.W.		17	17	17	14	10	—
Qland.		311	207	183	157	133	15
S. Aust.		495	455	482	609	755	163
W. Aust.		1,018	904	830	839	871	207
Tasmania		—	—	—	—	—	—
Brown coal	'000 tons	9,331	10,112	10,560	10,741	11,644	2,705
Victoria		9,331	10,112	10,560	10,741	11,644	2,706

TABLE 7 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA.

Commodity & Country of Origin	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar 1959*
METALLIC GROUP.							
Aluminium & aluminium-base alloys—							
Ore (bauxite)	ton	—	19,287	38,391	45,147	69,473	31,123
Indonesia		—	—	19,625	45,133	69,473	31,123
Other		—	19,287	18,766	14	—	—
Ingots (refined)	ton	10,421	14,861	10,223	8,374	14,813	3,013
Canada		6,516	10,617	4,983	5,970	13,948	2,890
Other		3,905	4,244	5,240	2,404	865	123
Rods and bars	ton	96	336	300	661	423	42
Plates, sheets & strips	"	1,812	2,759	2,276	1,881	2,317	568
United Kingdom		1,265	1,992	1,598	1,253	1,335	379
Other		547	767	678	628	982	189
Angles, circles, pipes and tubes	ton	n.a.	217	124	255	87	29
Foil	"	1,691	1,987	1,938	2,193	2,409	692
United Kingdom		1,546	1,920	1,877	2,072	2,078	577
Other		145	67	61	121	331	115
Powder	ton	299	348	564	531	486	182
Wire, single strand, uncovered	ton	n.a.	32	80	43	94	4
Scrap (incl. re-melt)	"	5	42	139	10	102	1
Antimony—							
Ore & concentrate	ton	1,023	872	690	213	10	10
Metal, incl. antimonial and lead compounds	ton	101	368	21	166	69	22
Arsenic trioxide	ton	2,648	3,492	2,170	1,586	2,699	381
Bismuth metal	lb.	44,449	35,975	35,992	42,589	37,530	8,736
Chromium ore & conc.	ton	5,282	9,582	3,073	8,653	8,772	1,037
Copper—							
Blister	ton	500	—	—	—	—	—
Pigs, ingots & blocks (refined)	ton	14,409	21,303	250	4,251	659	155
Canada		500	4,065	—	1,150	50	—
Rhodesia and Nyasaland		—	4,032	250	2,001	—	—
Other		13,909	13,206	—	1,100	609	155
Bars, rods, angles & tees	ton	1,867	2,942	609	1,108	1,330	90
Plates, sheets & strips	"	1,122	1,156	1,440	920	939	179
Pipes and tubes	"	81	117	14	3	20	7
Wire, single strand, uncovered	ton	n.a.	6	19	12	34	13
Powder	"	n.a.	32	54	83	72	38
Scrap (incl. re-melt)	"	36	10	12	24	17	1
Copper-base alloys—							
Pigs, ingots & blocks	ton	n.a.	21	65	15	7	2
Rolled drawn and extruded shapes	ton	n.a.	399	372	484	627	151
Wire, single strand, uncovered	ton	n.a.	146	134	176	187	44
Scrap	"	n.a.	97	18	144	101	17
Gold—							
Refined forms (excl. specie, leaf & foil)	f. oz.	—	—	12	—	—	—
Unrefined bullion	"	211,018	150,479	201,871	159,998	160,232	26,310
New Guinea		98,775	64,950	90,809	65,929	45,999	8,263
Fiji		72,189	64,220	87,897	67,632	92,925	14,924
Other		40,054	21,309	23,165	26,437	21,308	3,123
Ilmenite concentrate	ton	14,054	9,146	13,540	500	—	—
Iron ore	ton	17	32	14,052	203,011	296,157	55,863
New Caledonia		5	—	14,026	202,982	296,157	55,853
Other		12	32	26	29	—	10

TABLE 7 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Origin	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
METALLIC GROUP—(Continued).							
Iron & Steel—							
Ferro-alloys (excl. powder)—							
Ferro-chromium	ton	615	1,987	1,305	1,777	1,692	801
Norway		43	879	822	952	931	801
Other		572	1,308	822	952	931	801
Ferro-manganese	ton	1,517	5,630	7,339	5,037	3,060	1,065
Norway		790	4,498	6,636	3,434	51	15
Other		727	1,132	683	1,603	3,009	1,050
Ferro-molybdenum	ton	n.a.	130	131	142	164	9
Sweden		n.a.	75	101	97	138	—
Other		n.a.	55	30	45	24	9
Ferro-silicon	ton	n.a.	n.a.	5,576	7,154	7,482	3,158
South Africa		n.a.	n.a.	168	1,704	6,217	3,113
Norway		n.a.	n.a.	1,727	1,664	1,146	11
Other		n.a.	n.a.	3,481	3,786	1,119	34
Other	ton	3,753	4,720	786	469	737	186
Angles and tees		34,803	53,440	28,669	4,684	4,053	2,502
Structural steel		n.a.	89,730	54,134	12,574	10,592	6,407
Bars and rods		21,900	109,446	55,890	17,860	24,798	2,376
United Kingdom		19,111	37,517	20,592	12,312	6,257	1,116
Japan		1,187	59,304	15,802	1,324	11,856	75
Other		1,602	12,625	19,496	4,224	6,683	1,185
Heap	ton	11,556	67,772	24,809	11,603	13,112	2,739
United Kingdom		n.a.	28,472	9,716	7,352	7,407	1,969
Other		n.a.	39,300	15,093	4,251	5,705	770
Strip	ton	1,931	2,958	4,308	3,474	2,242	502
Plate & sheet (plain)		69,952	122,710	37,808	15,404	15,918	2,582
United Kingdom		n.a.	49,701	22,221	10,986	12,629	3,290
Other		n.a.	73,009	15,587	4,418	3,287	803
Tinplate	ton	127,300	145,938	120,917	144,199	66,088	21,709
United Kingdom		86,979	120,833	101,249	126,498	57,488	16,401
Other		40,321	25,105	19,668	17,701	8,610	5,308
Manganese—							
Metallurgical ore	ton	89	30	20	—	44	—
Battery grade ore		1,110	3,129	2,010	2,049	1,144	1,005
Metal and powder	lb.	n.a.	43	44	67	85	6
Mercury		133,218	82,470	68,441	55,738	65,398	23,966
Italy		23,148	23,177	17,979	20,798	19,690	6,081
Spain		108,131	41,882	48,340	32,957	23,864	5,168
Other		1,939	17,411	2,102	1,983	21,844	12,717
Nickel—							
Pins, ingots & blocks	ton	527	572	683	867	674	189
Rolled, drawn and extruded shapes	ton	17	18	130	45	16	7
Nickel-base alloys—							
Rolled, drawn and extruded shapes	ton	n.a.	n.a.	n.a.	n.a.	259	176
Wire, single strand, uncovered	ton	n.a.	n.a.	34	88	78	68
Platinum and Platinum Group Metals—							
Platinum (excl. wire)	oz.	4,716	8,938	1,991	2,153	1,385	—
Other (excl. wire)		n.a.	1,022	1,854	1,870	1,108	—
Wire		n.a.	89	102	77	1,567	406
Silver, unrefined bullion	1000 f. oz.	104	39	55	34	75	9
New Guinea		52	18	36	29	34	9
Other		30	12	11	14	11	—
Tin (refined)	ton	571	506	516	1,218	1,070	275
Titanium oxide		5,906	7,252	8,177	6,172	6,996	1,264

TABLE 7 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Origin	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
FUEL GROUP.							
Coal	ton	3,040	4,026	5,075	9,214	6,315	2
Coke (incl. petroleum coke)	ton	6,737	3,999	2,922	14,887	8,697	—
Petroleum oils—							
Crude	000 gals.	129,502	851,355	1,789,828	2,118,179	2,441,916	613,733
Enriched crude		380,647	414,769	198,822	142,908	95,302	3,950
Spirit		674,274	571,661	327,007	183,132	207,500	79,759
Kerosene		143,542	139,013	135,755	112,789	97,403	22,633
Diesel oil		449,638	248,366	16,294	15,922	11,724	1,922
Residual, furnace oil		—	—	63,206	13,083	7,617	1,499
Lubricating oil		35,914	39,554	42,751	40,165	41,665	13,219
NON-METALLIC (Excluding Fuel) GROUP.							
Asbestos—							
Chrysotile	short ton	28,734	31,003	18,344	22,873	23,406	5,601
Canada		19,724	22,016	14,448	18,665	20,223	4,480
Other		9,010	8,987	3,896	4,188	3,085	1,121
Crocidolite	short ton	346	116	65	165	311	—
Amosite		8,819	13,508	10,644	10,322	13,984	3,221
South Africa		8,748	12,983	10,543	10,088	13,417	3,217
Other		71	525	101	234	567	4
Other	short ton	56	165	525	528	1,185	641
Barite (ground)	ton	18	281	213	96	241	246
Calcium carbide		8,604	9,610	15,137	12,776	12,413	3,783
South Africa		3,514	6,427	8,577	6,197	7,392	2,984
Norway		5,090	3,169	4,739	6,381	4,439	549
Other		—	14	1,821	198	578	250
Cement, Portland	ton	99,646	89,400	11,402	11,812	5,698	2,929
United Kingdom		56,994	75,942	7,596	4,753	2,564	806
Japan		17,456	4,128	1,600	4,281	—	—
Other		25,196	8,970	2,206	2,778	3,354	2,123
Clays—							
Ball clay	ton	358	479	773	558	407	101
Bentonite		4,761	5,274	4,800	5,051	4,952	1,462
Fire clay		672	736	789	831	594	142
Fuller's earth		172	257	169	196	150	63
White clay		433	5,553	9,168	6,631	2,502	629
Clays, n.e.c.		1,865	2,393	2,402	2,485	2,585	672
Cryolite		60	173	541	1,597	299	—
Diamonds, industrial	carat	141,955	267,365	245,472	215,719	191,335	54,258
South Africa		123,241	217,268	196,694	172,695	127,649	23,425
Other		18,714	50,097	48,776	43,024	63,686	30,833
Diatomite	ton	2,433	4,823	4,394	3,856	3,736	1,174
Fluorspar (fluorite)		427	445	385	545	975	125
Graphite—							
Colloidal	ton	n.a.	45	52	47	52	7
Flake		281	209	172	236	280	77
Crystalline		97	106	107	81	40	30
Amorphous		594	635	500	501	542	129
Kyanite		215	244	199	487	500	—
Magnesite		2,364	4,588	2,238	3,833	8,675	87
Mica—							
Block or sheet, trimmed	lb.	60,476	39,535	16,244	18,539	21,368	7,947
Cut or stamped		1,752	5,693	1,599	2,373	2,594	765
Condenser film (not cut or stamped)	lb.	3,600	200	100	320	—	—
Splittings (not cut or stamped)	lb.	119,850	345,710	121,922	162,629	160,700	25,000
Ground or pulverised		30,097	107,103	81,702	115,653	217,104	33,224
Scrap		454,749	221,160	204,170	325,360	559,940	163,360

TABLE 7 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Origin	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
NON-METALLIC (Excluding Fuel) GROUP.—(Continued).							
Phosphate rock	000 tons	1,160	1,251	1,332	1,035	1,501	274
Nauru		693	725	841	590	833	162
Christmas Is. (Indian Ocean)		308	291	285	253	361	62
Gilbert and Ellice Is.		159	226	204	192	298	38
Other		—	9	2	—	9	12
Potassium chloride (fertiliser grade)	ton	22,299	26,841	27,725	40,357	47,942	11,806
Potassium sulphate (fertiliser grade)	ton	4,038	3,378	4,304	4,138	7,389	1,021
Salt—							
Rock	ton	2,349	2,276	1,988	3,336	1,879	200
Other	"	5,106	6,558	4,684	4,814	7,543	1,672
Sodium nitrate (fertiliser grade)	ton	7,659	16,590	16,874	9,400	13,803	69
Silimanite	"	5	45	161	132	131	78
Sulphur	"	187,916	195,482	202,977	120,277	202,421	46,311
U.S.A.		157,926	177,181	143,720	71,211	146,831	20,566
Mexico		—	15,774	40,552	48,722	42,840	25,672
Other		29,990	2,527	18,705	344	12,750	73
Talc	ton	n.a.	137	75	285	307	35

TABLE 8 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA.

Commodity & Country of Destination	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
METALLIC GROUP.							
Aluminium & aluminium-base alloys—							
Ingot (refined)	ton	—	—	4	762	—	—
Rolled, drawn & extruded shapes (excl. wire)	ton	48	50	30	83	135	9
Scrap (incl. re-melt)	"	450	115	6	155	123	40
Beryllium ore and concentrate	ton	163	210	309	397	146	—
Cadmium—							
Ingot and blocks	ton	21	97	71	58	48	8
Bars and rods	"	151	70	71	143	178	31
Copper—							
Ore and concentrate	ton	2,050	3,954	12,804	16,067	14,951	11,450
Japan		1,616	3,953	12,787	16,046	14,951	11,450
Other		434	1	17	21	—	—
Matte	ton	n.a.	—	960	493	—	—

TABLE 8 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Destination	Unit of Quantity	1954	1955	1956	1957	1958*	Jan-Mar. 1959*
METALLIC GROUP.—(Continued).							
Copper.—(Continued)							
Blister copper	ton	9,789	8,159	15,574	19,131	14,471	10,702
Belgium-Luxembourg		—	—	—	3,488	6,805	4,696
Germany, Fed. Rep.		—	—	—	1,984	2,060	2,003
U.S.A.		9,789	8,159	15,574	12,620	3,983	4,003
Other		—	—	—	1,039	1,625	—
Pigs, ingots & blocks (refined)	ton	14	2	1,002	1	—	—
Rolled, drawn & extruded shapes	ton	392	468	1,581	1,216	1,365	75
Wire, single strand, uncovered	ton	608	108	202	681	308	190
Scrap (incl. re-melt)	"	60	55	15	15	279	46
Slags and residues	"	n.a.	—	25	114	1,333	—
Copper-base alloys—							
Pigs, ingots & blocks (refined)	ton	n.a.	239	36	193	18	27
Rolled, drawn & extruded shapes	ton	n.a.	1,419	2,141	1,318	283	126
Wire, single strand, uncovered	ton	n.a.	16	50	42	11	—
Scrap	"	n.a.	55	167	—	226	1,291
Copper-lead dross	"	4,803	7,974	7,698	7,833	7,709	2,172
U.S.A.		3,055	7,974	7,628	4,076	5,035	2,172
Other		1,748	—	70	3,755	2,674	—
Gold.							
Ore and concentrate	ton	75	42	—	14	—	—
Refined forms (excl. specie, leaf and foil)	f. oz.	568,230	1,120,618	530,968	783,814	128,550	77,553
Hong Kong		425,870	999,838	523,374	771,302	122,520	77,221
Other		142,360	120,780	7,594	12,512	6,030	332
Unrefined bullion	f. oz.	502	15,957	42	—	—	4,052
Ilmenite concentrate	ton	171	434	1,130	37,811	56,243	—
Iron and steel—							
Iron ore	ton	—	—	117	65	6	—
Pig iron	"	33,738	44,892	16,420	15,330	18,303	4,503
New Zealand		11,602	6,340	8,253	5,371	8,538	1,309
Other		22,136	38,552	8,167	9,959	9,765	3,194
Ingot, blooms & billets	ton	26,561	211	1,747	2,327	728	123
New Zealand		134	60	22	4	205	16
Other		26,427	151	1,725	2,323	523	107
Bars and rods	ton	20,541	9,729	16,842	21,595	28,588	6,441
New Zealand		16,810	9,089	9,839	25,297	6,260	—
Other		3,731	647	11,753	11,756	3,292	181
Angles and tees	ton	3,182	2,246	4,138	8,160	5,786	2,097
New Zealand		n.a.	1,956	2,862	3,866	4,457	2,069
Other		n.a.	290	1,276	4,294	1,325	28
Plate and sheet, plain	ton	14,990	11,946	61,070	143,629	85,444	41,020
India		n.a.	—	418	19,681	3,265	—
Malaya		n.a.	30	57	2,544	6,755	523
New Zealand		n.a.	11,224	14,743	20,140	29,501	3,999
Japan		n.a.	68	36,047	60,603	153	5,422
Other		n.a.	624	9,805	40,661	45,761	31,076
Plate and sheet, galv's'd	ton	11,997	7,242	38,484	86,378	58,938	8,782
India		n.a.	—	13,285	10,746	50	—
New Zealand		n.a.	4,620	17,994	51,371	32,989	3,742
Philippines		n.a.	—	—	1,736	—	—
Other		n.a.	2,622	7,205	20,630	24,163	5,040
Scrap	ton	64,387	74,476	105,123	178,255	156,930	44,916
Japan		n.a.	55,078	82,280	152,417	134,457	40,022
Other		n.a.	19,398	22,843	25,838	22,473	4,894

TABLE 8 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Destination	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
METALLIC GROUP—(Continued).							
Lead—							
Ore and concentrate	ton	58,237	59,336	77,362	91,236	84,088	11,945
Belgium-Luxemburg		12,899	8,231	2,891	5,169	21,822	6
Japan		7,568	6,119	13,352	31,326	18,029	2,645
U.S.A.		25,785	38,512	57,137	50,697	37,552	7,959
Other		11,985	6,474	3,982	4,044	6,685	1,335
Bullion	ton	36,153	38,493	38,190	47,618	58,068	15,513
United Kingdom		36,153	38,493	38,190	47,618	58,068	15,513
Pig	ton	159,328	145,874	149,061	160,589	155,730	36,844
United Kingdom		95,490	81,630	64,362	57,717	53,407	21,253
India		5	—	3,710	3,871	6,126	687
New Zealand		4,885	4,536	4,673	4,391	5,350	842
Japan		49	1,170	1,930	16,106	1,799	350
U.S.A.		55,156	56,096	73,478	74,707	75,542	12,020
Other		3,743	2,442	908	3,797	13,506	1,692
Rolled and extruded shapes	ton	1,224	86	82	182	99	42
Antimonial lead	"	109	235	159	345	109	50
Scrap	"	13,680	12,125	10,708	8,372	5,152	566
Slags and residues	"	n.a.	2,621	2,678	3,011	2,604	3,643
Manganese ore	"	n.a.	2	2	30,081	18,399	—
Other	"	n.a.	—	—	21,165	7,794	—
Monazite concentrate	ton	76	107	56	145	—	10
Nickel and nickel-base alloys	ton	40	95	80	28	31	43
Platinum and platinum group metals—							
Ore and concentrate	cwt.	n.a.	13	3	24	48	—
Metal and powder	oz.	n.a.	690	805	369	833	7
Rutile concentrate	ton	44,417	59,687	89,887	119,052	75,615	17,645
United Kingdom		9,991	12,234	12,494	11,022	11,630	2,752
Netherlands		4,634	7,756	8,900	9,871	9,444	2,144
U.S.A.		14,418	21,248	46,210	70,613	26,210	3,763
Other		15,474	18,449	22,283	27,546	28,320	8,986
Silver—							
Refined ingot or bar	'000 f. oz.	7,368	5,941	16,412	3,670	4,875	766
Refined other	"	50	1	32	2	1	4
Unrefined bullion and matte	'000 f. oz.	14	72	148	12	—	—
Tantalum & columbium ore and concentrate	ton	39	58	48	6	8	2
Tin—							
Concentrate	ton	8	137	48	162	25	36
Refined	"	94	98	24	21	11	1
Tin-base alloys	"	n.a.	25	7	23	50	1
Tungsten—							
Scheelite concentrate	ton	1,174	1,344	1,388	1,987	505	20
United Kingdom		303	404	250	59	134	20
U.S.A.		854	925	1,114	1,167	274	—
Other		17	14	24	161	96	—
Wolfram concentrate	ton	838	964	824	653	442	86
United Kingdom		455	477	177	117	66	20
U.S.A.		303	362	442	322	162	20
Other		80	125	205	214	213	—
Zinc—							
Concentrate	ton	264,263	240,844	267,402	323,654	261,142	28,135
United Kingdom		170,437	132,388	143,072	179,439	115,825	11,871
Belgium-Luxemburg		n.a.	57,836	85,895	88,817	115,421	5,726
Other		n.a.	50,620	38,435	55,398	29,896	10,538
Refinery-type shapes	ton	38,262	31,902	31,594	37,092	37,938	6,139
United Kingdom		14,513	9,906	10,568	3,952	7,727	—
India		19,140	18,712	12,237	22,337	21,940	4,603
U.S.A.		2,851	3,503	6,002	8,002	2,001	—
Other		1,758	1,781	2,797	2,801	6,270	1,536

TABLE 8 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA — (Continued).

Commodity & Country of Destination	Unit of Quantity	1954	1955	1956	1957	1958*	Jan.-Mar. 1959*
METALLIC GROUP—(Continued).							
Zinc—(Continued)							
Plates and sheets	ton	94	106	91	135	86	6
Circles and strips	"	3,650	2,098	2,192	1,426	1,004	171
Slags and residues	"	n.a.	3,523	5,460	4,470	3,476	630
Scrap	"	609	815	527	414	332	159
Zircon concentrate	"	36,512	46,685	68,838	85,254	60,895	23,183
United Kingdom		7,769	9,685	15,090	18,212	21,043	7,984
U.S.A.		13,631	24,738	28,026	37,735	19,017	7,700
Other		15,112	12,262	25,722	29,307	20,835	7,499
FUEL GROUP.							
Coal	ton	376,774	202,062	239,379	759,095	823,925	111,062
Argentina		—	—	—	—	88,891	9,432
New Caledonia		170,970	158,070	152,629	183,280	171,561	28,330
Japan		—	9,432	28,189	440,896	360,709	68,718
Korea, Republic of		183,432	15,160	34,837	93,011	173,243	—
Other		22,372	19,400	23,724	41,908	29,521	4,582
Coke	ton	22,789	33,308	87,985	181,842	52,460	365
New Caledonia		n.a.	31,228	84,190	145,338	51,848	—
Other		n.a.	2,080	3,795	36,504	612	365
Petroleum oils—							
Spirit	'000 gals.	1,090	38,177	19,829	36,133	80,153	5,750
Kerosene	"	912	953	10,361	3,087	9,914	1,525
Diesel oil	"	15,399	44,309	2,693	21,294	43,081	18,258
Residual, furnace oil	"	—	—	147,872	156,027	202,052	69,349
Lubricating oil	"	1,032	1,095	1,220	1,039	1,050	258
NON-METALLIC (Excluding Fuel) GROUP.							
Asbestos—							
Chrysotile	short ton	—	73	40	378	173	2
Crocidolite	"	1,891	7,253	7,579	10,892	10,049	1,037
U.S.A.		—	3,120	3,405	6,753	6,020	700
Other		—	4,133	4,174	4,639	4,029	337
Other	short ton	—	20	101	59	143	26
Barite (ground)	ton	1,932	940	757	3,377	2,494	63
Calcium carbide	"	82	23	51	104	88	8
Cement, constructional	"	50,681	12,838	6,444	19,342	20,401	6,892
New Guinea		117	392	903	2,205	4,732	676
Fiji		1,629	888	546	5,812	8,659	4,628
Christmas Is. (Indian Ocean)		1,002	1,100	1,851	5,396	1,098	302
Other		47,933	10,458	3,144	5,927	5,912	1,286
Clays	ton	3,156	1,779	1,123	798	646	538
Diamonds, industrial	carat	91,628	79,265	114,311	68,268	41,529	7,578
Diatomite	ton	n.a.	n.a.	46	26	—	—
Felspar	"	184	220	357	—	10	—
Graphite	"	15	22	5	9	8	1
Gypsum	"	42,262	38,743	37,618	41,780	68,138	20,850
New Zealand		35,049	38,743	37,618	40,554	62,128	18,131
Other		7,213	—	—	1,226	6,010	2,719
Magnesite	ton	107	105	108	53	31	24
Mica	lb.	18,808	7,784	6,490	9,177	119,272	5,258
Opals	value £A	91,115	122,967	173,835	288,951	351,342	120,479
Salt	ton	20,809	21,556	22,848	18,556	20,346	3,971
New Zealand		18,487	20,101	20,537	17,126	16,982	3,371
Other		2,322	1,455	2,311	1,430	3,364	600
Superphosphate	ton	2,340	1,330	1,882	1,616	1,607	1,010
Talc	"	2,110	2,234	3,320	2,326	3,256	812

III. APPENDIX

The following later information has become available since compilation of statistical tables for periods up to 31st March, 1959. The figures are preliminary and subject to revision.

TABLE 9—SMELTER AND REFINERY PRODUCTION OF PRINCIPAL METALS: AUSTRALIA
(Excludes secondary metal (i.e., metal recovered from scrap) unless otherwise specified).

Metal	Unit of Quantity	Production*			
		April 1959	May 1959	June 1959	April-June 1959
Aluminium (refined)	ton	1,074	1,129	1,146	3,349
Cadmium (refined)	"	n.a.	n.a.	n.a.	n.a.
Copper (blister) (a)	"	5,589	5,548	6,540	18,777
Copper (refined)	"	3,687	4,207	3,942	11,836
Gold (refined)—	"				
Australian origin	f. oz.	83,951	118,098	97,917	299,966
Oversea origin	"	9,743	5,587	18,078	33,408
Total refined gold	"	93,694	123,685	115,995	333,374
Lead—	"				
Refined (b)	ton	16,488	16,064	16,506	49,058
Lead content of lead-silver bullion produced for export	ton	3,659	3,307	4,369	11,335
Total lead content	"	20,147	19,371	20,875	60,393
Pig iron (c)	"	192,175	206,462	231,108	629,745
Steel ingots (c)	"	265,404	287,401	291,666	844,471
Silver (refined)	'000 f. oz.	712	732	721	2,165
Tin (refined)	ton	165	148	295	608
Zinc (refined slab) (d)	"	9,350	9,944	9,731	29,025

(a) Total production for refining in Australia and overseas. (b) Includes lead content of antimonial lead. (c) Includes recovery from scrap. (d) Includes small quantities of metal recovered from zinc dust used in works.

Note: Particulars of refined aluminium, cadmium, copper, lead, silver, tin and zinc in Table 9 were collected by the Bureau of Mineral Resources.

TABLE 10 — MINE PRODUCTION OF GOLD AND COAL: AUSTRALIA.

Item.	Unit of Quantity	Production*			
		April 1959	May 1959	June 1959	April-June 1959
Gold (a)	f. oz.	83,161	82,699	99,630	265,690
Coal—	"				
Black	'000 tons	1,701	1,671	1,782	5,154
Brown	"	1,024	1,130	1,188	3,342

(a) Gold content of minerals produced.

IV. SUPPLEMENT

TABLE 11 — SUMMARY OF MINING AND QUARRYING OPERATIONS: AUSTRALIA.

Industry	1954	1955	1956	1957	1958*
VALUE OF OUTPUT AT MINE OR QUARRY (a) £A'000.					
Metal mining	71,150	84,530	94,643	82,294	70,955
Fuel mining	58,829	58,119	57,083	57,507	57,183
Non-metal (excluding fuel) mining (b)	7,041	7,375	6,154	9,069	9,808
Total all mining	137,020	150,024	159,880	148,870	137,946
Construction material quarrying (b)	12,383	14,847	16,440	17,835	18,000
Total all mining and quarrying	149,403	164,871	176,320	166,705	155,946
New South Wales	78,202	84,244	88,790	83,170	71,363
Victoria	10,080	10,917	11,891	12,672	13,290
Queensland	21,602	26,892	30,204	25,577	27,237
South Australia	8,580	10,512	11,910	11,872	11,443
Western Australia	20,736	19,746	20,240	20,983	21,154
Tasmania	8,955	10,744	10,555	9,556	8,584
Northern Territory	1,145	1,691	2,594	2,695	2,667
Australian Capital Territory	103	125	146	170	208

VALUE OF PRODUCTION (c) £A'000.

Metal mining	53,853	66,754	74,199	60,927	n.a.
Fuel mining	48,187	47,598	46,093	46,639	n.a.
Non-metal (excluding fuel) mining (b)	5,619	5,767	6,213	6,914	n.a.
Total all mining	107,659	120,119	126,505	114,480	n.a.
Construction material quarrying (b)	10,428	12,389	13,474	14,388	n.a.
Total all mining and quarrying	118,087	132,508	139,979	128,868	+119,208

PERSONS EMPLOYED (d).

Metal mining	21,366	21,992	23,271	22,882	n.a.
Fuel mining	28,212	27,162	25,461	23,924	n.a.
Non-metal (excluding fuel) mining (b)	2,914	2,943	2,984	3,048	n.a.
Total all mining	52,492	52,097	51,716	49,854	n.a.
Construction material quarrying (b)	4,121	4,197	4,329	4,640	n.a.
Total all mining and quarrying	56,613	56,294	56,045	54,494	n.a.

(a) Selling value at point of sale of mine or quarry products less transport costs from mine or quarry to point of sale. (b) Incomplete for some non-metal (excluding fuel) mining industries outside the normal administrative control of State Mines Departments and for construction material quarrying in some States. (c) Value of output at mine or quarry less cost of power, fuel and light and other materials and stores used; depreciation and maintenance costs have not been deducted. (d) Average number of persons employed during the whole year. Fossickers and prospectors are excluded. In States where particulars of oil-search operations are available, the numbers of persons employed, have been included with Non-metal mining.

TABLE 12 — QUANTITIES AND VALUES OF MINERALS PRODUCED: AUSTRALIA.

Mineral	Unit of Quantity	1956		1957		1958*	
		Quantity	Value (a) £A'000	Quantity	Value (a) £A'000	Quantity	Value (a) £A'000
METALLIC MINERALS.							
Antimony ore and conc. . .	ton	847	36	852	60	1,116	87
Bauxite . . .	"	10,329	22	7,707	15	6,909	21
Beryllium ore . .	"	316	58	395	73	247	46
Bismuth conc. . .	lb	1,282				3,310	1
Chromite . . .	ton	6,096	97	3,049	31	776	5
Copper ore and conc. etc (b) . .	ton	237,888	18,287	144,830	13,979	302,299	14,765
Gold ore, conc. concentrate, etc	ton	107	3	959	25	1,858	64
Gold — other forms (c) . . .	ounce	n.a.					
Ilmenite conc. . .	ton	15,506	n.a.	16,023	n.a.	15,163	
Iron ore . . .	'000 tons	4,274	20	71,155	339	70,295	271
Iron oxide . . .	ton	2,924	4,449	3,805	4,295	3,926	4,447
Lead and lead-silver ore and conc., etc. . .	ton	15,605	35	15,101	43	8,982	25
Manganese ore . .	ton	495,852	34,552	509,866	28,810	498,149	22,512
Molybdenite . . .	lb	59,984	337	77,010	589	59,683	471
concentrate . . .							
Manganese conc. .	ton	224	5,160		2	10,080	3
Osmiridium, native . . .	ounce	102	18	141	20	454	53
Platinum conc. . .		25	2	66	6	42	3
Pyrite ore and concentrate . . .	ton	25	28	1	1	28	1
Rutile conc. . .		184,488	1,003	229,125	1,166	226,744	1,221
Tantalite - columbite conc. . .	lb	95,816	6,430	128,903	8,577	83,326	4,510
Tin concentrate . .	ton	159,655	128	50,038	12	13,507	9
Tungsten concs . .		2,326	1,599	2,867	1,612	3,128	1,619
Zinc conc. . .		2,372	3,332	2,106	2,167	1,250	637
Zircon conc. . .		530,777	6,215	556,763	3,655	503,751	3,364
		72,458	604	88,561	854	59,270	437
Total value of metallic minerals (d) . . .			94,752		82,354		70,955
FUEL MINERALS.							
Black coal . . .	'000 tons	19,274	52,439	19,919	52,279	20,442	51,414
Brown coal . . .		10,560	4,644	10,741	5,228	11,644	5,769
Total value of fuel minerals . . .			57,083		57,507		57,183
NON-METALLIC (Excluding Fuel) MINERALS.							
Asbestos . . .	short ton	9,705	749	14,670	1,139	15,568	1,263
Barite . . .	ton	6,009	51	9,778	52	6,802	33
Clays — . . .							
Brick . . .	'000 tons	13,426	(e) 1,350	13,531	(e) 1,212	13,829	(e) 1,490
Other (e) . . .		770	618	748	866	775	589
Diamonds, industrial . . .	carat	363	4	312	4	158	2
(a) Value of output (i.e., selling value at the mine) includes current production and stockpiles.							

(a) Value of output (i.e., selling value at the mine or quarry or associated treatment plant). (b) Includes cupreous ore for fertilizer. (c) Bullion, alluvial, retorted gold, etc. (d) Owing to the necessity of classifying individual mines according to principal mineral produced, the values in Table 11 for mining industry groups differ slightly from totals of each of the corresponding groups of mine products shown in this table. (e) Incomplete; figures relate only to production reported by Mines Departments.

Table 12—QUANTITIES & VALUES OF MINERALS PRODUCED: AUSTRALIA—(Contd.).

Mineral	Unit of Quantity	1956		1957		1958*	
		Quantity	Value (a) £A'000	Quantity	Value (a) £A'000	Quantity	Value (a) £A'000
NON-METALLIC (Excluding Fuel) MINERALS—(Continued).							
Diatomite	ton	5,789	24	6,221	24	4,240	20
Dolomite	"	115,564	110	192,103	163	158,148	139
Felspar	"	18,629	89	8,819	43	7,016	32
Fluorspar	"	745	9	700	7	946	10
Garnet conc.	"	85		70		36	
Gems	value only		126		185		218
Glaucanite	ton	85	3	126	5	112	6
Graphite	"	10					
Gypsum	"	467,484	587	478,435	616	504,938	672
Limestone (incl. shell & coral)	'000 tons	4,264	3,091	4,572	3,261	5,490	3,817
Loam (e)	ton	17,399	12	16,967	13	21,505	16
Magnesite	"	64,685	247	83,473	331	69,371	284
Mica (muscovite)—							
Block	lb.	28,837	42	36,713	49	31,391	45
Scrap, crude and film	lb.	—	—	40,600	1	62,608	2
Mineral pigments	ton	508	4	107	1	283	3
Peat	"	—	—	90	—	—	—
Pebbles	"	698	6	747	5	970	8
Perlite	"	339	2	—	—	300	—
Petalite	"	—	—	—	—	68	—
Phosphate rock	"	6,788	14	11,430	25	7,421	16
Pyrophyllite	"	339	2	358	2	267	2
Salt	"	408,689	+664	427,600	+735	429,534	+842
Serpentine	"	910	1	781	1	955	1
Silica (e)	"	142,489	111	149,339	134	145,493	158
Sillimanite	"	2,181	13	2,302	16	1,696	11
Slate	"	150	1	105	—	15	—
Talc	"	13,035	111	14,360	112	15,393	129
Vermiculite	"	1	—	—	—	—	—
Total value of non-metallic (excl. fuel) minerals (d)			8,041		9,002		9,808
CONSTRUCTION MATERIALS.							
Total value of construction materials (de)			16,444		17,842		+18,000
TOTAL							
Total value of all minerals & construction materials			176,320		166,705		155,946

(a) Value of output (i.e., selling value at the mine or quarry or associated treatment plant). (b) Includes cupreous ore for fertilizer. (c) Bullion, alluvial, retorted gold, etc. (d) Owing to the necessity of classifying individual mines according to principal mineral produced, the values in Table 11 for mining industry groups differ slightly from totals of each of the corresponding groups of mine products shown in this table. (e) Incomplete; figures relate only to production reported by Mines Departments.

TABLE 13 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA.

Commodity	Unit of Quantity	1956		1957		1958*	
		Quantity	Value £A 000	Quantity	Value £A 000	Quantity	Value £A 000
METALLIC GROUP							
Aluminium & aluminium—							
base alloys—							
Ore (bauxite)	ton	38 391	87	45 147	108	69 473	136
Ingots (refined)	"	10 223	2 696	8 374	2 199	14 813	3 332
Rods and bars	"	300	101	661	200	423	127
Plates, sheets & strips	"	2 276	1 038	1 881	907	2 317	1 026
Angles, circles, pipes and tubes	ton	124	73	255	146	87	58
Foil	"	1 938	1 206	2 193	1 512	2 409	1 711
Powder	"	564	142	531	163	486	150
Wire, single strand, uncovered	ton	80	67	43	36	94	76
Scrap (incl. re-melt)	"	139	27	10	1	102	12
Antimony—							
Ore and concentrate	ton	690	58	213	18	10	1
Metal, incl. antimonial and lead compounds	ton	21	6	166	37	69	14
Arsenic trioxide	"	2 170	100	1 586	67	2 699	98
Bismuth metal	lb.	35 992	35	42 589	43	37 530	38
Chromium ore and concentrate	ton	3 073	33	8 653	118	8 772	90
Copper—							
Pigs, ingots & blocks (refined)	ton	250	98	4 251	1 374	659	165
Bars, rods, angles and tees	"	609	286	1 108	341	1 330	340
Plates, sheets & strips	"	1 440	497	920	373	939	310
Pipes and tubes	"	14	13	3	2	20	11
Wire, single strand, uncovered	"	19	16	12	12	34	16
Powder	"	54	34	83	39	72	34
Scrap (incl. re-melt)	"	12	3	24	5	17	3
Copper-base alloys—							
Pigs, ingots & blocks	ton	65	23	15	10	7	5
Rolled, drawn and extruded shapes	ton	372	220	494	218	627	240
Wire, single strand, uncovered	ton	134	87	176	80	187	90
Scrap	"	18	2	144	22	101	14
Gold—							
Refined forms (excl. specie, leaf and foil)	f. oz.	12	—	—	—	—	—
Unrefined bullion	"	201 871	3 182	159 998	2 479	160 232	2 502
Ilmenite concentrate	ton	13 540	87	500	4	—	—
Iron and steel—							
Iron ore	ton	14 052	15	203 011	203	296 157	305
Ferro-alloys (excl. powder)—							
Ferro-chromium	ton	1 305	259	1 777	331	1 692	333
Ferro-manganese	"	7 339	656	5 037	719	3 060	372
Ferro-molybdenum	"	131	142	175	164	196	196
Ferro-silicon	"	5 576	552	7 154	733	7 482	489
Other	"	785	84	469	103	737	96
Angles and tees	"	28 369	1 626	4 684	327	4 023	233
Structural steel	"	54 134	3 208	12 574	872	10 592	548
Bars and rods	"	55 890	4 518	17 860	2 394	24 798	2 750
Hoop	"	24 809	2 278	11 503	1 368	13 112	1 632
Strip	"	4 308	664	3 474	479	2 242	405
Plate & sheet, plain	"	37 808	4 970	15 404	2 860	15 918	3 354
Tinplate	"	120 917	11 656	144 199	14 991	66 098	6 702

TABLE 13 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Contd.).

Commodity	Unit of Quantity	1956		1957		1958*	
		Quantity	Value £A'000	Quantity	Value £A'000	Quantity	Value £A'000
METALLIC GROUP—(Continued).							
Manganese—							
Metallurgical ore	ton	20	2	—	—	44	2
Battery grade ore	"	2,010	42	2,049	67	1,144	58
Metal and powder	"	44	14	67	23	85	29
Mercury	lb.	68,441	126	55,738	91	65,398	87
Nickel—							
Pigs, ingots & blocks	ton	683	476	867	589	674	506
Rolled, drawn and extruded shapes	ton	130	117	45	41	16	23
Nickel-base alloys—							
Rolled, drawn and extruded shapes	ton	n.a.	n.a.	n.a.	n.a.	269	258
Wire, single strand, uncovered	ton	34	60	88	154	78	170
Platinum and platinum group metals—							
Platinum (excl. wire)	oz.	1,991	39	2,153	39	1,385	28
Other (excl. wire)	"	1,232	17	1,870	22	1,108	11
Wire	"	1,354	57	1,518	62	1,567	47
Silver, unrefined bullion	'000 f. oz.	102	40	77	31	75	29
Tin (refined)	ton	516	497	1,218	1,176	1,070	955
Titanium oxide	"	8,177	1,936	6,172	1,383	6,996	1,482
FUEL GROUP							
Coal	ton	5,075	34	9,214	42	6,315	32
Coke (incl. petroleum coke)	ton	2,922	46	14,887	239	8,697	143
Petroleum oils—							
Crude	'000 gals.	1,789,828	45,516	2,118,179	57,574	2,441,916	67,778
Enriched crude	"	198,822	7,226	142,908	6,156	95,302	4,079
Spirit	"	327,007	20,515	183,132	11,940	207,500	12,565
Kerosene	"	135,755	7,107	112,789	6,280	97,403	5,337
Diesel oil	"	16,294	839	15,922	852	11,724	619
Residual, furnace oil	"	63,206	2,404	13,083	685	7,617	488
Lubricating oil	"	42,751	6,070	40,165	5,831	41,665	5,759
NON-METALLIC (Excluding Fuel) GROUP.							
Asbestos—							
Chrysotile	short ton	18,344	1,349	22,873	1,798	23,408	1,751
Crocidolite	"	65	5	165	12	311	31
Amosite	"	10,644	453	10,322	543	13,984	667
Other	"	525	35	528	24	1,185	44
Barite (ground)	ton	213	2	96	1	241	4
Calcium carbide	"	15,137	545	12,776	459	12,413	469
Cement, Portland	"	11,402	112	11,812	140	5,898	97
Clays—							
Ball clay	ton	773	8	558	6	407	7
Bentonite	"	4,800	65	5,051	74	4,952	69
Fireclay	"	789	24	831	26	594	21
Fuller's earth	"	169	2	196	2	150	2
White clay	"	9,168	72	6,631	65	2,502	31
Clays, n.e.i.	"	1,920	30	2,403	36	2,585	41
Cryolite	"	541	56	1,475	164	1,597	171
Diamonds, industrial	carat	245,472	497	215,719	487	191,335	376
Diatomite	ton	4,394	136	3,856	118	3,736	118
Fluorspar (fluorite)	"	385	8	545	13	675	19

TABLE 13 — IMPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Contd.).

Commodity	Unit of Quantity	1956		1957		1958*	
		Quantity	Value £A'000	Quantity	Value £A'000	Quantity	Value £A'000

NON-METALLIC (Excluding Fuel) GROUP—(Continued).

Graphite—							
Colloidal	ton	52	12	47	14	52	19
Flake	"	172	13	236	15	280	21
Crystalline	"	107	7	81	6	40	4
Amorphous	"	500	27	501	27	542	29
Kyanite	"	199	6	487	14	500	16
Magnesite	"	2,238	93	3,833	108	8,875	144
Mica—							
Block or sheet, trimmed	lb.	16,244	13	18,539	19	21,368	20
Cut or stamped	"	1,599	3	2,373	3	2,594	4
Condenser film (not cut or stamped)	lb.	100	—	320	2	—	—
Splittings (not cut or stamped)	lb.	121,922	17	182,629	22	160,700	24
Ground or pulverized	"	81,702	4	115,653	5	217,104	8
Scrap	"	204,170	1	325,360	1	558,940	3
Phosphate rock	'000 tons	1,332	2,770	1,035	2,622	1,501	3,894
Potassium chloride (fertilizer grade)	ton	27,725	451	40,357	606	47,942	753
Potassium sulphate (fertilizer grade)	ton	4,304	75	4,138	85	7,389	118
Salt—							
Rock	ton	1,988	12	3,336	19	1,879	11
Other	"	4,684	110	4,814	102	7,543	137
Sodium nitrate (fertilizer grade)	ton	16,874	362	9,400	243	13,803	330
Sillimanite	"	161	8	132	5	131	6
Sulphur	"	202,977	2,620	120,277	1,459	202,421	2,254
Talc	"	75	5	285	11	307	10

TABLE 14 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA.

Commodity	Unit of Quantity	1956		1957		1958*	
		Quantity	Value £A'000	Quantity	Value £A'000	Quantity	Value £A'000
METALLIC GROUP.							
Aluminium & aluminium base alloys—							
Ingots (refined)	ton	4	1	762	187	—	—
Rolled, drawn and extruded shapes (exclusive)	ton	30	11	83	39	135	43
Scrap (incl. re-melt)	"	6	1	155	18	123	11
Beryllium ore and concentrate	ton	309	48	397	69	146	26
Cadmium—							
Ingots and blocks	ton	71	110	58	90	48	70
Bars and rods	"	71	120	143	230	178	242
Copper—							
Ore and concentrate	ton	12,804	1,146	16,067	911	14,951	627
Matte	"	960	133	493	38	—	—
Blister	"	15,574	5,792	19,131	5,004	14,471	3,156
Pigs, ingots & blocks (refined)	ton	1,002	450	1	1	—	—
Rolled, drawn and extruded shapes	ton	1,581	792	1,216	525	1,365	558
Wire, single strand, uncovered	ton	202	126	681	257	308	118
Scrap (incl. re-melt)	"	15	5	—	—	279	48
Slags and residues	"	25	5	114	23	1,333	36
Copper-base alloys—							
Pigs, ingots & blocks	ton	36	13	193	48	18	4
Rolled, drawn and extruded shapes	ton	2,141	644	1,318	418	283	102
Wire, single strand, uncovered	ton	50	2	42	17	11	3
Scrap	"	167	5	—	—	226	36
Copper-lead dross	"	7,698	1,099	7,633	927	7,709	703
Gold—							
Ore and concentrate	ton	—	—	14	1	—	—
Refined forms (exclusive specie, leaf and foil)	f. oz.	530,968	8,331	783,814	12,275	128,550	2,111
Unrefined bullion	"	42	1	—	—	—	—
Ilmenite concentrate	ton	1,130	10	37,811	227	56,243	307
Iron and steel—							
Iron ore	ton	117	1	65	1	6	—
Pig iron	"	16,420	401	15,330	415	18,303	497
Ingots, blooms and billets	ton	1,747	83	2,327	131	728	31
Bars and rods	"	16,842	906	21,595	1,094	28,588	1,420
Angles and tees	"	4,138	214	8,160	411	5,786	269
Plate & sheet, plain	"	61,070	3,430	143,629	8,008	85,444	5,169
Plate & sheet, galv'd.	ton	38,484	3,324	86,378	6,961	58,938	4,911
Scrap	"	105,123	2,347	178,255	5,010	156,930	2,836
Lead—							
Ore and concentrate	ton	77,362	5,454	91,236	5,813	84,088	4,776
Bullion	"	38,190	6,081	47,618	7,085	58,068	6,104
Pig	"	149,061	20,897	160,589	19,368	155,730	13,729
Rolled and extruded shapes	ton	82	14	182	31	99	13
Antimonial lead	"	159	20	345	47	109	10
Scrap	"	10,708	1,072	8,372	747	5,152	323
Slags and residues	"	2,678	144	3,011	132	2,604	73
Manganese ore	"	2	—	30,061	671	18,399	383
Monazite concentrate	"	56	9	145	23	—	—
Nickel and nickel-base alloys	ton	80	37	28	11	31	8

TABLE 14 — EXPORTS OF MINERALS AND MINERAL PRODUCTS: AUSTRALIA—(Contd.).

Commodity	Unit of Quantity	1956		1957		1958*	
		Quantity	Value £A'000	Quantity	Value £A'000	Quantity	Value £A'000
METALLIC GROUP—(Continued).							
Platinum and platinum group metals—							
Ore and concentrate	cwt.	3	1	24	7	48	16
Metal and powder	oz.	805	29	369	14	833	25
Rutile concentrate	ton	89,887	6,598	119,052	8,617	75,615	4,630
Silver—							
Refined ingot or bar	'000 f. oz.	16,412	5,498	3,670	1,504	4,875	1,910
Refined, other	"	32	13	2	1	1	1
Unrefined bullion and matte	'000 f. oz.	148	54	12	4	—	—
Tantalum & columbium ore and concentrate	ton	48	82	6	9	8	15
Tin—							
Concentrate	ton	48	28	162	91	25	15
Refined	"	24	24	21	21	11	11
Tin-base alloys	"	7	—	23	1	50	2
Tungsten—							
Scheelite concentrate	ton	1,388	2,384	1,387	1,848	506	542
Wolfram concentrate	"	824	966	653	539	442	165
Zinc—							
Concentrate	ton	267,402	4,668	323,654	5,201	261,142	2,749
Refinery-type shapes	"	31,594	3,802	37,092	4,033	37,938	3,165
Plates and sheets	"	91	21	135	28	86	16
Circles and strips	"	2,192	422	1,426	292	1,004	168
Slags and residues	"	5,460	390	4,470	203	3,476	166
Scrap	"	527	43	414	28	332	14
Zircon concentrate	"	68,838	822	85,254	1,143	60,895	711
FUEL GROUP.							
Coal	ton	239,379	944	759,095	3,056	823,925	3,408
Coke	"	87,985	712	181,842	1,395	52,460	481
Petroleum oils—							
Spirit	'000 gals	19,829	1,271	36,133	2,857	80,153	4,814
Kerosene	"	10,361	666	3,087	276	9,914	597
Diesel oil	"	2,693	171	21,294	1,465	43,081	2,511
Residual, furnace oil	"	147,872	6,702	156,027	8,258	202,052	9,131
Lubricating oil	"	1,220	373	1,039	335	1,050	366
NON-METALLIC (Excluding Fuel) GROUP.							
Asbestos—							
Chrysotile	short ton	40	3	378	19	173	8
Crocidolite	"	7,579	712	10,892	1,186	10,049	904
Other	"	101	6	59	7	143	19
Barite (ground)	ton	757	14	3,377	55	2,494	42
Calcium carbide	"	51	4	104	6	88	6
Cement, constructional	"	6,444	74	19,342	200	20,401	187
Clays	"	1,123	17	799	14	646	12
Diamonds, industrial	carat	114,311	223	68,268	135	41,529	60
Diatomite	ton	46	2	26	1	46	1
Felspar	"	357	9	—	—	10	—
Graphite	"	5	1	9	1	8	1
Gypsum	"	37,618	62	41,780	74	68,138	154
Magnesite	"	108	5	53	2	31	2
Mica	lb.	6,490	7	9,177	6	119,272	12
Opals	Value £A	—	173,835	—	288,951	—	351,342
Salt	ton	22,848	176	18,556	151	20,346	172
Superphosphate	"	1,882	27	1,616	24	1,607	25
Talc	"	3,320	55	2,326	43	3,256	56

TABLE 15 — SMELTER AND REFINERY PRODUCTION OF METALS: AUSTRALIA.

(Excludes secondary metal (i.e., metal recovered from scrap) unless otherwise specified).

Refined Product	Unit of Quantity	1955/56		1956/57		1957/58	
		Quantity	Value (a) £A'000	Quantity	Value (a) £A'000	Quantity	Value (a) £A'000
Aluminium	ton	5,519	n.a.	9,999	(b)2,750	10,712	(b)2,950
Antimony	"	(c)	(c)	(c)	(c)	(c)	(c)
Cadmium	"	295	445	333	512	370	543
Cobalt oxide	"	19	21	20	21	22	24
Copper							
(blister) (d)	ton	42,638	(b)19,901	48,823	(b)16,500	56,435	(b)15,200
Copper (refined)—							
Electrolytic	ton	22,560	(b)9,960	28,637	(b)10,257	30,382	(b)9,708
Fire refined	"	1,912	839	3,897	1,388	5,460	1,772
Total	"	24,472	10,799	32,534	11,645	35,842	11,480
Gold—							
Australian origin	f. oz.	1,035,560	(e)16,193	1,059,908	(e)16,599	1,106,445	(e)17,301
Oversea origin	f. oz.	155,134	2,424	169,242	2,644	152,505	2,383
Total	"	1,190,694	18,617	1,229,150	19,243	1,258,950	19,684
Iron and steel—							
Pig iron—							
Basic	ton	1,697,665	n.a.	1,924,745	n.a.	2,052,852	n.a.
Foundry (f)	"	212,856	n.a.	173,607	n.a.	231,073	n.a.
Total	"	1,910,521	n.a.	2,098,352	n.a.	2,283,925	n.a.
Steel ingots (f)	"	2,320,289	n.a.	2,853,501	n.a.	3,037,705	n.a.
Lead—							
Refined (g)	ton	184,500	(b)24,733	194,923	(b)25,972	205,711	(b)19,000
Lead content of lead-silver bullion produced for export	ton	36,290	6,441	44,875	7,867	50,603	5,491
Total lead content	"	220,790	31,174	239,798	33,839	256,314	24,491
Platinum group metals	oz.	3	(c)	52	(c)	77	(c)
Selenium	lb.	(c)	(c)	(c)	(c)	(c)	(c)
Silver—							
Australian origin	f. oz.	8,135,971	(b)3,324	8,725,317	(b)3,602	8,459,393	(b)3,385
Oversea origin	f. oz.	59,279	(b)27	64,718	(b)26	57,446	(b)23
Total	"	8,195,250	(b)3,351	8,790,035	(b)3,628	8,516,839	(b)3,408
Tin	ton	1,908	1,883	1,776	1,802	1,991	1,946
Zinc, refined slab (h)	ton	103,964	(b)10,188	106,622	(b)11,555	115,129	(b)10,000

(a) Selling value of works. (b) Estimate based on average selling price of the metal over the period. (c) Not available for publication. (d) Total production for refining in Australia and overseas. (e) Includes allowances for premiums on sales of gold overseas and for industrial purposes in Australia. (f) Includes recovery from scrap. (g) Includes lead content of antimonial lead. (h) Includes small quantities of metal recovered from zinc dust used in works.

Note: Except for "Gold" and "Iron and Steel", the above information was collected by the Bureau of Mineral Resources.