

Some Aspects of Tasmania's Mineral Industry

In 1793, the first recorded discovery of coal in Tasmania was made in the vicinity of South East Cape by Labillardiere and his party of explorers, who were on a voyage in search of La Perouse. It was not until the 1830's, however, that the mining industry of Tasmania commenced with the production by convict labour of small quantities of coal at Port Arthur and elsewhere in the south-eastern district. From these small beginnings the mining industry has advanced until it now plays a most important part in the economy of the State. In 1956 the value of mineral production reached £18,500,000, a figure which does not include the output of metallurgical plants refining imported ores. The value of minerals produced in Tasmania since records were kept until 1956 totalled £192,547,000.

A strong impact on the mining world has been made by a series of discoveries including the famous Mt Bischoff tin in 1871, silver-lead at Zeehan in 1882, the Mt Lyell copper deposit in 1883, the lead-zinc ore-bodies of Rosebery, the silver-lead fields of Mt Farrell and Dundas, the tin fields of the north-east in the 1880's and 90's, and most recently by the proving of immense quantities of iron ore in the Savage River district. The major minerals now being mined here are copper, zinc, tungsten, lead, tin and coal. However, it is the story of some of our now less plentiful and, perhaps for that reason, less known minerals that this article is to tell.

GOLD

An early boost to the Colony's mining industry came in 1852 with the discovery of alluvial gold near Mangana. This discovery resulted from the impetus given to the search for the metal by the return in the previous year of diggers from the alluvial fields of Victoria and other mainland States where they had gained experience in the treatment of alluvial material and the recovery of gold therefrom. Though there were no spectacular "gold rushes" in Tasmania and the discovery of nuggets was not a common occurrence, it is on record that the alluvial diggings of the Fingal district gave employment to upwards of 500 men and at one time more than 2,500 men were employed at Lisle. The recorded production from the Lisle field, though far from complete, is 85,000 ounces.

Of recent years a fresh source of alluvial gold has arisen where dredging operations in the Dorset Flats area near the township of Pioneer in the north-east of the State produce gold as a by-product from the tin-bearing gravels of the Ringarooma River.

Small quantities of gold will continue to be produced from shallow alluvial goldfields and from alluvial tin deposits with which gold is associated but the known shallow alluvial goldfields have been exhausted in so far as major operations are concerned. The future of alluvial gold is related to the discovery of new fields or operations on the deeper alluvials.

The alluvial drifts from which the earliest gold was won were widespread in occurrence and at some of these sites, Beaconsfield, Lefroy and Mathinna, the gold mining industry was maintained, after the exhaustion of the drifts, by the discovery of reef gold. The Tasmania Mine, Beaconsfield, during its 42 years of operations from 1877 to 1919, produced a total of 849,913 ounces of fine gold, whilst 257,000 ounces were

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won from the Golden Gate Mine at Mathinna during its life-time.

There are no lode mines, of moment, at present in operation for the sole production of gold, the major portion of the output accruing as by-products from other forms of mining. From its inception to 30th June, 1957, the Mt Lyell Mine at Queenstown has produced 548,459 ounces of gold. Its present yearly production is approximately 5,500 ounces as a by-product from the treatment of copper ore. At Rosebery, the Electrolytic Zinc Company's lead-zinc mine has produced a total of about 242,000 ounces, with a yearly output at present of approximately 12,000 ounces.

Although the yearly production of gold in Tasmania has fallen considerably from the yield of former years, it is still an important contribution to the total output of the mining industry. During 1957, 19,442 ounces of a total value of £A 303,788 were produced. Whilst mines such as those at Mt Lyell and Rosebery exist the production of gold will continue. Any improvement must result from the re-opening of now closed mines, the development of known alluvial fields previously considered too low grade to be worked, the location and development of ore bodies from which gold may be recovered as a by-product, the location of payable zones within the compass of known reefing series or the discovery of new fields, either alluvial or lode, in parts of the State not yet explored.

Osmiridium

In the early years of this century, alluvial gold miners in the Savage - Heazlewood district of the West Coast had great difficulty in separating a heavy, silvery, platy metal from their gold and were penalised at the rate of 7/6 per ounce for including it with gold sent to the Mint. Later it was realised that this metal was osmiridium, for which there was no demand at the time but which was to become more valuable than the gold it "contaminated".

At first all the osmiridium recovered in the sluicing operations was discarded and most of it thrown away, but as uses were found for the metal overseas the industry gradually developed and as the price advanced so production increased. Thus it was that by 1909 the price had risen from 25/- to 90/- per ounce and miners began to invade the fields already discovered and to explore and develop new areas. Production mounted through the years from the workings situated between Waratah and Dundas, the main centres being Bald Hill, Mt Stewart, Savage River and Wilson River.

Why the great demand for Tasmanian osmiridium? The metal had been found in other countries including South Africa, Russia, America, New Zealand, Japan, Borneo and the West Indies, but the Tasmanian product was unique. Osmiridium, a natural alloy of platinum-group metals, chiefly osmium and iridium, commonly occurred as very fine grains or thin flakes in the overseas deposits. In the Tasmanian fields were found a somewhat larger proportion of medium-sized, rounded grains with little tendency to split into flakes. It was discovered that grains with these properties could be put to good use in making hard tips for gold nibs of fountain pens, the mineral being soldered to the point with silver solder, then split by a rotating metal disc impregnated with diamond dust, and finally ground down

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to the desired shape for the nib. As the Russian osmiridium was marketed in the form of its component metals (osmium and iridium sponge) and the South African product was too fine to use in tipping nibs, Tasmania became the most important producer of "pen-point" metal.

Fine and flaky grains, unable to be used in pen nibs, were processed into their component metals. Small amounts of iridium alloyed with platinum harden it and render it resistant to wear and abrasion, so this alloy found use in the jewellery, dental, electrical and chemical trades, to mention just a few. Osmium was used in histology and microscopy for hardening and colouring tissues and was at one time in demand for the osmium incandescent lamp.

The total production of osmiridium in this State up to 1925 was 13,500 ounces valued at £308,897. In that year the metal was discovered in the previously uninhabited Adamsfield district of Southern Tasmania and a great "rush" occurred. Over 1,000 miners' rights were issued at the Mines Office, Hobart, during the latter half of the year, the record being over 100 in one day. During September and October there was probably a maximum of 800 men on the field at the one time. For the year 1925 the total production of osmiridium in Tasmania amounted to 3,666 ounces valued at £103,570, the greater part of it coming from Adamsfield. Thereafter there was a rapid decline in the demand for the metal, partly because of competition from substitutes and artificial alloys and partly because of "flooding" of the London markets with huge quantities of Russian iridium sponge. Prices fell, consequently production declined and few men were engaged in mining osmiridium. With a few fluctuations (increase in price to as much as £30 per ounce in 1928 temporarily stimulated the interest of miners in Adamsfield) production diminished gradually until in 1954 only 16 ounces were produced. In the year 1957, output amounted to 66 ounces valued at £A 5,945.

Because of the sporadic nature of mineralisation, little mining has been undertaken from the parent rock, serpentine, and activities have been concentrated on the alluvial deposits. Now, however, some prospecting is being carried out with a view to the possible increase of hard-rock mining at Adamsfield and consequent revival of the industry by the use of more modern methods.

COLLECTORS' SPECIMENS

Up to this point we have heard the story of some of Tasmania's minerals which are valuable because of their usefulness. However, this State has also won recognition for the production of minerals destined for a life in museum showcases or in private collections. Few can resist the charm of some of our rare minerals that have become world-famous (in mineralogical circles, at least) as collector's items and because of their beauty and rarity, high prices are paid overseas for perfect specimens.

One of the old Dundas silver-lead mines, long abandoned as far as production of these metals is concerned, has recently been re-opened principally to supply the demand for specimens of crocoite and cerussite. The ~~former~~ mineral occurs as clusters of crystals varying from colourless and transparent to snow-white or even to canary-yellow when they contain traces of chromium. Crocoite, considered by many to be the most beautiful of

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all minerals, is found in the Dundas district as masses of glittering, perfectly formed, almost transparent crystals, up to six inches long and of a brilliant orange-red colour which is sometimes accentuated by an accompanying layer of velvet-black crystals of manganese oxide.

It is a fitting tribute to the early workers in Tasmania's mining industry and associated fields that some of our famous minerals have been named in honour of them and of the places in which they settled, e.g. petterdite (after W.F. Petterd, a mineralogist responsible for the determination and description of many of our minerals), batchelorite (after Mr. W.T. Batchelor, former mine manager of Mt Lyell), dundasite and heazlewoodite (after West Coast mining towns), and the striking lilac-coloured stichtite named for Mr. R. Sticht, former general manager of the Mt Lyell Mine.

PAST, PRESENT AND FUTURE

Times and methods change; the adventure and hardship synonymous with old-style prospecting have been largely superseded by modern scientific exploration, including aerial geophysical surveying for minerals; previously isolated mining settlements have been drawn closer, as it were, to the cities by the advent of fast road and air travel; but mention of the names of these minerals serves as a reminder to us of those who helped to put the now-prosperous mining industry on a firm footing.

As for the future - if the vigorous prospecting programmes planned by major organisations and the activities of small parties, especially in the rugged, mostly unexplored regions of the west and south-west, are any indication, then the outlook of Tasmania's mineral industry is exceedingly bright.

Department of Mines,
HOBART

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