

### SULPHUR RESOURCES OF TASMANIA.

Tasmania, although possessing no deposits of native sulphur, is rich in sulphide minerals and several operating mines produce or could produce an iron sulphide concentrate. Sulphides of iron, notably pyrite and to a less extent pyrrhotite are widely spread in Tasmanian rocks but possible economic deposits of these appear to be confined to West Coast areas.

The main source of production is, and has been, from Mt. Lyell from where about 40,000 tons of iron pyrites is shipped annually. For a few years production was maintained from the Chester Mine where large deposits close to a railway await further development. A few mines of the Zeehan District have produced pyrite in small quantities. At the Risdon works of the Electrolytic Zinc Company, sulphuric acid is made from the sulphur contained in zinc concentrates. Portion of these zinc concentrates result from the milling of the Read - Rosebery ore but the pyrite content of this ore, estimated at 31% is allowed to remain in the tailings. At Renison Bell, tin oxide is obtained from large ore-bodies of which pyrrhotite is the principal metallic mineral. A concentrate consisting largely of pyrrhotite is removed by flotation and allowed to run to waste. At Mt. Bischoff, are large bodies of pyrite, pyrrhotite and marcasite but during the long life of the mine, these have never been utilised in sulphur production.

The only Tasmanian mine that has been worked solely for pyrites is the Chester Mine, which is situated near the summit of Mt. Kershaw, within a mile of the Emu Bay Railway at a point 63 miles from the Port of Burnie. The ore body is lenticular in form and coincides in strike and dip with the enclosing schists; that is striking at  $10^{\circ}$  to  $20^{\circ}$  east of north and dipping to the south east at  $60^{\circ}$ . The thickness of the lenses varies from 20 to 280 feet and their horizontal length on the surface, at the main workings, has been proved to exceed 600 feet. The ore is pyrite in a gangue of pyrophyllite and quartz with some barytes and calcite. The dip of the ore body coincides with that of the surface of the hill and the pyrite has been mined by open cut methods. Production during the period 1909 - 1913 amounted to 36,964 tons of pyrite containing an average sulphur content of 37.2%. McIntosh Reid, in 1918, estimated the ore reserves as 2,800,000 tons containing over 20% sulphur.

The Mt. Cleveland Mine, in the past, has been a producer of tin and is situated a mile south of the ten mile peg of the Waratah - Corinna Road. The ore bodies are of fissure - replacement type; the fissures being filled with tin-bearing pyrite and the much larger replacement deposits, which extend to 20 or 30 feet on either side of the fissures, being mainly composed of pyrrhotite. Thus from a sulphur point of view the main substance is pyrrhotite. Carey has estimated the probable ore reserves as 197,000 tons. These are of course, reckoned as an ore of tin, so that reserves as an ore of sulphur should be larger.

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Another ore deposit which is similar in character to that at Mt. Cleveland, but which is situated in more inaccessible country is that at Mt. Lindsay. No road is constructed anywhere near this locality which is reached by a pack track going north west from Renison Bell. The lodes, again are of the replacement - fissure type and McIntosh Reid has estimated the pyrrhotite ore reserves at about 10,000 tons, all of which could be won by open cut mining.

Some of the mines of the Zeehan and Comstock Field are located in a pyritic belt of the ore bodies and pyrite lodes of the fissure -replacement type containing various valuable metals have been worked for silver, lead, copper etc.. Some of the mines, however, have been producers of the more humble iron pyrites. In the early years of the century, pyrite for the manufacture of sulphuric acid was regularly exported from Mr. Bruce's tribute on the low grade pyrite-stannite-chalcopyrite ore of the Conah Mine. This mine is situated just outside the township of Zeehan.

Between 1918 and 1921, a few hundred tons of iron pyrites were produced from the Kynance and Susanite Mines at Comstock. These two mines lie on either side of the Trial Harbour Road and within a mile of it, three miles from Zeehan. At the Susanite mine are two parallel pyritic lodes the westerly of which is 16-18 feet in width. The Kynance lodes near the surface are composed mainly of magnetite but doubtless in depth more pyrite occurs.

Several other mines in the pyritic belt at Zeehan are potential pyrite producers. Of these, the Queen, Mt. Zeehan and Zeehan Queen mines may be mentioned.

In addition to Renison Bell, there are several other localities in the North Dundas Field, where former companies once worked pyrite and pyrrhotite bodies for the recovery of tin. Most of the sulphides occur in fissure lodes up to several feet in width, but replacement bodies do occur. Such former companies as the Central, Montana, Dreadnought Boulder etc. worked iron sulphide deposits for the recovery of tin. However, no ore bodies are as accessible and none probably as extensive as those at Renison Bell.

Four miles south of Penguin in North western Tasmania occur erratic bodies of iron pyrites. These bodies are replacements of Cambrian slates - quartzites near the boundary of an intrusive mass of Devonian porphyries. Some sampling over widths of about five feet in an open cut showed a 20% sulphur content. These deposits however, seem too small and erratic for their exploitation as ores of sulphur.

#### CONCLUSIONS.

The only source of sulphur being exploited in Tasmania at present is the iron pyrite from Mt. Lyell of which some 40,000 to 50,000 tons is shipped annually from the port of Strahan. Lack of shipping space precludes the export of all the pyrite obtained from the Lyell ores and many thousands of tons of this

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is stock piled annually. Pyrite is not saved at Rosebery but is allowed to remain in the tailings whilst a concentrate consisting largely of pyrrhotite is allowed to run to waste at Renison Bell. Large deposits of pyrrhotite and pyrite, containing tin occur at the Mt. Bischoff, Mt. Cleveland and Mt. Lindsay mines but the latter two are rather inaccessible. Perhaps the best source of sulphur in Tasmania is the large body of pyrite, situated close to the Emu Bay Railway and 63 miles from the port of Burnie, known as the Chester Mine.

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