

SULPHUR.

Native sulphur in sufficient quantity to be profitably worked is known only to occur in the thermal districts of the North Island, near Rotorua and Lake Taupo, and at White Island. With the exception of the small lake deposit on White Island, all the known native sulphur in payable quantity occurs in the form of pockets in pumice, or smelter around fumaroles or thermal springs (from which it has been sublimed in crystalline form), and as black sulphur. The fumarolic deposits, although of high grade generally, are inextensive when compared with those of massive form in seams or in veins as extensively worked in Japan, Sicily, and North America.

Prior to 1898 there was no separate record kept of the quantity of native sulphur exported, this being included under the heading of "mixed minerals" in the official statistics, but the quantity was not large. The following quantities have since been exported :—

1898	..	..	..	..	..	1,765 tons ; value, £4,097
1899	..	..	..	..	..	1,227 " " £3,483
1900	..	..	..	..	..	1,692 " " £4,824
1901	..	..	..	..	..	143 " " £360
1902	..	..	..	..	..	100 " " £475

Since 1902 the small quantity of sulphur produced has been used at chemical works in the Dominion. Owing to the nature of the deposits and to transport difficulties it is unlikely that sulphur can be exported at a price to compete with the supplies of the above-mentioned countries.

The following is a description of the most important of the native sulphur-deposits :—

White Island.—On this island sulphur-mining operations have been attempted on two occasions. During 1885 Mr. J. A. Wilson, of Auckland, and others bought the island, and from thence shipped 600 or 700 tons of native sulphur to Sydney ; they also erected a small treatment plant at Auckland, but the venture was not a financial success. The island subsequently was sold to Mr. Andrew Grey, of Wellington, who resold to the New Zealand Loan and Mercantile Agency (Limited). This company during 1912 sold the island to the New Zealand Sulphur Company, composed chiefly of Vancouver shareholders, and this company expended about £30,000. Near Crater Bay, on the island, it installed a refining plant consisting of a boiler for producing superheated steam and three cast-iron retorts each of 4 tons capacity ; a small wharf was also constructed. The crater lake was drained by a ditch to Crater Bay to enable the layers of sulphur thereunder to be worked ; and while the lake-bed was draining, quarrying operations by the use of explosives were commenced on small veins or pockets of native sulphur in the crater-walls near the eastern shore of the island. A small quantity of sulphur was refined and filled into casks ready for shipment. These operations were in progress when, on or about the 11th September, 1914, a violent eruption of the great active thermal crater occurred ; all the eleven employees of the company, the treatment plant, huts and wharf were hurled out to sea, and every trace of the same was obliterated. The lake-bed and the site of the works were buried under from 10 ft. to 15 ft. of mud and boulders ejected during the eruption. A new vent was formed in the lake-bed, and it is stated that activity therefrom is much greater than from the former "blowhole" now buried in débris from the crater-walls. Large blocks of sulphur from under the lake-bed hurled up during the formation of the new vent, and now lying on the surface, show the seam of sulphur under the lake to be fully 6 ft. thick ; its area, however, is unknown.

The quantity of sulphur in sight on other parts of the island does not exceed a few thousand tons. The cost of transport from the island would be considerable, and the dangers from sulphur-gases and further eruptions render the island absolutely unfit for the employment of men. The following are analyses by the Dominion Analyst of samples taken by me :—

	Sulphur. Per Cent.	Moisture. Per Cent.
Average grade from lake-bed	77.90	0.81
High grade from company's opencut	90.31	0.56
High grade from fumaroles near crater-walls	75.77	13.10
Refined brimstone from company's casks	99.59	0.23

Tauhara North.—Upon Subdivision 1, Tauhara North, Block 16, Tatua Survey District, owned by 172 Maoris, and distant about nine miles north-east of Taupo by fairly good road, the most extensive of our known sulphur-deposits occurs. Immediately to the north of Lake Rotokawa, off the usual tourist track, is a considerable area containing hot springs, around which many pockets of rich sulphur outcrop, which may safely be estimated to contain several thousands of tons of high-grade sulphur. Additional pockets would certainly be proved by prospecting under the loose pumice surface.

Samples of crude sulphur taken by me were analysed by the Dominion Analyst, with the following results :—

	Sulphur. Per Cent.	Moisture. Per Cent.
Average grade	89.29	0.83
High grade	95.50	3.22
High grade crystalline (hard)	97.19	0.38
Black (hard)	73.80	1.04

The percentage of moisture was lost at 100° C. in all analyses. This deposit has never been worked ; the cost of transport to a shipping port would be considerable.

Tikitere.—About eleven miles north-east by road from Rotorua are situated upon Native land the pools of boiling mud and springs of Tikitere, familiar to tourists. In proximity thereto pockets of yellow and black fumarolic sulphur outcrop, of which a few hundred tons may be easily obtained without injury to the sights which attract a considerable number of visitors annually. No sulphur has ever been removed from Tikitere, with the exception of a few tons exported by Captain H. R. Macdonald, of Rotorua, several years ago.