

DR. MACLAURIN'S SALT VACUUM PROCESS FOR CLEANING GUM.

This process was briefly described in my last annual report, when it was mentioned that tests with a miniature plant had been made in Wellington. A plant sufficient for testing the gum on a commercial scale has been set up in Auckland, and satisfactory results obtained. Up to the present time about 100 tons of gum have been treated by the process. Samples of the cleaned gum have been sent abroad, and it is hoped to make a trial shipment shortly.

So far as my experience goes, I am convinced that the Maclaurin process is the only satisfactory one for thoroughly cleaning gum, and separating dirt and foreign matter from it. With the various devices for dealing with gum-bearing soils which are now being tested, and which give a good prospect of producing gum at a very much lower cost and in larger quantities than heretofore, the scope of this process becomes much wider.

KAURI-PEAT SWAMPS.

For many years much speculation has taken place as to the value of kauri-peat and the possibility of distilling oils therefrom. Attention has been drawn to this matter in my previous reports, wherein such information as was available was published. During the last year or so much investigation has been done by private companies, and considerable sums of money have been expended. It is hoped that the extraction of oils from the kauri-peat swamps on commercial lines will very soon be an industry established on a satisfactory basis.

With a view to encouraging the development of the industry, legislation was passed in 1915 under which the Governor-General may from time to time, by Order in Council, set apart any area of Crown land situated in a kauri-gum district for the purpose of promoting the systematic recovery of kauri-gum and other valuable products contained therein, provided that the total area set apart under this section shall not exceed at any one time an area of 10,000 acres. The Land Board is empowered to dispose of, by way of lease, any land so set apart in areas not exceeding 3,000 acres. The period of the lease is twenty-one years. It is proposed this year to extend the term of the lease to forty-two years. Only one such lease has been granted, and that to the New Zealand Peat Oils (Limited), who have been granted an area of 3,000 acres situated near Kaimaumu, in the Mongonui County. The lessees have to pay a low rental and also a royalty on the kauri-gum, oil, and other valuable products obtained. This company has done a considerable amount of work, particulars of which have been referred to in previous reports. The work done during the past year is briefly summarized by the secretary as follows:—

“Peat and its Products.”—There has been considerable progress since the last report, and the company is well satisfied with the position as it has so far developed. Several tons of peat from the Government swamp and 250 gallons of crude oil, retorted at Kaimaumu under the supervision of Mr. F. J. Hagger, J.P., have been sent to London and have passed through experts' hands with very favourable results. 95 gallons have been fractionated there, and gave the following results: Light oil (spirit), 4½ gallons; medium oil (carbolic), 10 gallons; heavy oil (creosote), 24½ gallons; resinous tar and pitch, 22 gallons; water, 31 gallons; loss in handling, 3 gallons: total, 95 gallons.

“The percentage of water will be noticed in oil from which it had previously been run off. In this case, as in the crude oil supplied to the Northern Steamship Company, which ran one of their boats to Whakatane in record time, there were no proper appliances at Kaimaumu for completely taking out the water. The oil was fractionated by Messrs. Thos. Crow and Sons at their Barking works.

“The peat-water was found to contain methyl alcohol, acetone, acetic acid, and tar residues—lubricating-oil, paraffin, kauri-gum resins, anthracene, and pitch. Chemists further made an analysis of these fractions.

“The oils and other products from peat are approximately the same as those from coal, but the fact that kauri-gum essential oils are brought over and incorporated in the peat oils places them in a special position. The peat is picked over for marketable gum, but a considerable amount of gum-dust is present when the peat is retorted, and undoubtedly enriches the oils. There is much further research work to be done in this connection, and it may be some time before the company will receive the full benefits of refining. The by-products will be limited and primary until refining is carried out locally. In the meantime there should be a fair return for the crude and semi-crude products.

“A further treatment of kauri-peat in London has lately yielded 64½ gallons per ton of peat, this being from a sample which showed 10 per cent. of kauri-gum, from strata which will give a good number of tons of similar stuff in the 3,000-acre swamp held by the company.

“Briquettes have not hitherto been a success in this country, but those made up from the products of the company's retorts give excellent results: (1) They ignite more readily by far than coal; (2) they keep alight more persistently; (3) they burn steadily; (4) they give off a good heat. Such briquettes should have a higher value than coal on account of being good fire-lighters. Incidentally an almost ideal coke-furnace lighter has been made and used.

“The quantity of residue—charcoal or coke—amounts to about 8 cwt. per ton of dry peat, and tests are being made to ascertain the value of this as a fuel and gas-producer under different treatments. There are solid grounds for believing that this charcoal will prove a considerable asset.

“The layer of kauri timber in the Kaimaumu swamps was expected to hamper the cutting-out of peat, but a very fine tar has been made from the roots. This tar is being analysed in order to ascertain the more valuable oils that can be extracted before using it for roofing-material, caulking decks, &c., for which it is found to be a very superior article. The tree-trunks can be sawn into case-boards.