lands could be profitably dealt with by the State and brought under cultivation. It has been clearly proved by the Department of Agriculture, through the medium of the various demonstration areas on gum lands, that the lands are highly productive under proper treatment. The Albany area well establishes this fact. I think it very desirable that the breaking in and cultivation of these lands preparatory to their subdivision into fruit and other farms should be undertaken on a fairly large scale. As a commencement I suggest that an area of, say, 2,000 acres should be at once handed over to the Department of Agriculture in order that it may be made ready for settlement. The value of the gum recovered in the course of ploughing and harrowing the land will generally yield a good contribution towards the cost of the work, while in some cases it will be sufficient to pay the whole cost. It is from these lands that the valuable range gums are obtained, and special attention could be profitably given to the recovery of the gum as the work of cultivation proceeds. It would be wise as a preliminary to ploughing to test the area to find out the average depth of the gum, and then to work the ground sufficiently deep to expose all the gum; in places it will be found profitable to have the land rooted to a much greater depth than an ordinary furrow in order to get out the gum. In harrowing the land some appliance for collecting the gum could be advantageously used.

I have no doubt about the success of this project, being confident that the land will respond freely to proper and sympathetic treatment.

Kauri Peat Swamps.

The successful development of the kauri peat swamps depends on the proper utilization of all their products. Our experience has shown that in the shallow swamps similar to the areas where the face-digging has been carried on there is 2s. worth of kauri-gum in every cubic yard of soil. In regard to the gum there is, of course, no difficulty in turning it to account; the only problem here is the separation of the gum from the soil. In previous reports I have referred to the large quantity of kauri timber in the swamps, and to the question of finding a profitable way of utilizing it. That the timber contains a high percentage of gum is evident from the most cursory inspection, but tests made by Dr. Maclaurin in 1915 place the matter beyond doubt. A sample from the Mangawai Swamp was tested and gave the following results: A—Dust and fragments of bark which composed about one-tenth of the whole; B—Portions of wood and bark on which gum was plainly visible, cut from larger pieces; C—Bark which showed no gum; D—Large pieces of wood which showed no gum. The results obtained were—A, 31·1 per cent.; B, 41·8 per cent.; C, 16·5 per cent.; D, 16·8 per cent.: the average of the whole being about 19·4 per cent. Dr. Maclaurin says, "These results, although probably too high, are sufficiently accurate to show that the timber forwarded contains a large amount of kauri-gum."

In January last Dr. Maclaurin visited the Mangawai face works for the purpose of inspecting the timber taken out of the ground during the digging operations, and in order to examine more closely matters affecting the cleaning of the gum, the treatment of the timber, and other waste products of the gumfields. He has since continued his investigations with encouraging results.

When I was in America I discussed the timber question with Mr. H. S. Betts, Engineer, Forests Products Laboratory, United States Department of Agriculture, Washington, D.C., and subsequently with Dr. Schorger, Chief Chemist, and Mr. H. E. Surface, of the same Department, at the Forests Laboratory, Madison, Wis. As a result of my inquiries and of the investigations made I am satisfied that the whole of the timber, which at present is a waste product and the chief obstacle in dealing with these swamps, can be dealt with and put to a profitable use.

KAURI SWAMP PEAT.

The question of extracting oil from the kauri peat on a commercial scale is securing attention by private enterprise. A company called the Trevor Oils (Limited) has been formed with this object, and an application has been made for an area of 2,000 acres of peat land near Kaimaumau, under the provisions of section 3 of the Kauri-gum Industry Amendment Act, 1915, for the purpose of establishing the works.

Associated with this company is Mr. S. Rosse Trevor, of Auckland, who has during the last fifteen years devoted himself almost entirely to the investigation of the problem of the best method of utilizing the products of the kauri peat swamps. His experience has led him to the conclusion that the kauri peat is the richest in oil of any peat in the world. He has invented a process for the extraction of oil and other products from the peat; this he has been demonstrating at Kaimaumau, where he has had a small plant at work during the last eighteen months. Up to the present he claims to have extracted 1,200 gallons of oil from the peat. It has been said by other investigators that the lower layer of the peat swamps is always richest in oil. Mr. Trevor says that his experience does not support this; on the contrary, he has found that the lowest layer is seldom rich in oil, although it often appears so. Having had the advantage of being on the ground when the peat for his experiments was obtained he has been able to satisfy himself that he is correct on this point.

The peats treated by Mr. Trevor were obtained from various swamps in the North of Auckland Peninsula under his personal supervision, the thickness of the layers varying from 12 in. to 14 ft. He is of opinion that most of the kauri peat swamps will pay to treat for the oils they contain, which he estimates to be almost 14 per cent., or approximately equivalent to 30 gallons of oil for each ton of air-dried peat.