

1922.
NEW ZEALAND.

KAURI-GUM INDUSTRY

(REPORT ON THE) FOR THE YEAR ENDED 31st MARCH, 1922.

Presented to both Houses of the General Assembly pursuant to Section 5 of the Kauri-gum Industry Amendment Act, 1914.

SIR,—

Department of Lands and Survey, Wellington, 28th July, 1922.

I have the honour to submit herewith the annual report under the Kauri-gum Industry Amendment Act, 1914, for the year ended 31st March, 1922.

I have, &c.,

J. B. THOMPSON, Under-Secretary.

The Hon. D. H. Guthrie, Minister of Lands.

REPORT OF THE KAURI-GUM SUPERINTENDENT.

THE INFLUENCE OF THE STATE DEPARTMENT ON THE LOCAL MARKET.

THERE never was any real doubt as to the necessity for State aid for the kauri-gum industry during the Great War. As time has gone on the real usefulness of the Government Kauri-gum Department has become more manifest. The past twelve months have particularly shown that the work of the Department is as necessary as ever, both in regard to the interests of the producer on the gumfields and for the welfare of the industry generally. This is especially so owing to the absence of any standard grading for kauri-gum, so that the producers have but a vague idea what the grades are really worth at any particular time. It has always been held by this Department that it is not the amount of gum purchased by us that signifies, but the fact that the Government is actually buying kauri-gum, and that there is actual competition. During the time of the "boom" exporters in many cases paid far higher prices than the Department, and our clients were urged to sell to these buyers when the big prices were obtainable. It is in times of depression that the purchasing operations by the State Department are of special value to the digger. The prices payable by other buyers are invariably set by the Department's prices, and it only remains for an odd digger or two in a district to consign his gum to the Department to cause a fair price to be offered by local buyers. A good example of this occurred last month. A small consignment was received by us from an out-of-the-way locality which no Government buyer had visited, and where practically no previous business had been done by the Department. The gum was priced, and an order on the Post Office sent by return mail. Immediately after came a letter from a storekeeper in that district, which read, "Please let me know what price for gum you gave to anybody for all kinds, nuts and dust. Let me know by return mail." The reply sent was that we paid "ruling prices at date of delivery." The idea was that the inquirer wished to adjust his prices so that, whilst still under our prices, he would not be sufficiently so to encourage the diggers to go to the trouble of sending the gum to Auckland and have to wait for the money. Here it was not a question of what the storekeeper could afford to give for the gum, but merely a question of meeting the competition.

During dull times like the present it is quite a common happening for Dalmatian buyers and dealers, and also for country storekeepers, to come to this office and make inquiries as to what prices are being paid for different grades of gum. Sometimes a few sample gradings are brought, with the assurance that the inquirer has so-much of it for sale. These people are, of course, only trying to find out what prices they themselves must offer so as to do business in the locality in which their operations are carried out. Like the storekeeper referred to, they must pay at least the equivalent of the Department's prices, and sometimes before leaving the office they are frank enough to say so.

THE RESULT OF THE YEAR'S TRADING.

The business transacted during the year shows a loss of £1,719 14s. 7d., after allowing for interest on debentures to the amount of £2,879 16s. 1d. As a result of the Department buying freely during the "slump" which set in towards the end of 1920, and from which the trade has not yet nearly recovered, expenses have gone on just the same, and the lack of business abroad brought prices down to the point where there was little chance of profit. The unusually large holdings of gum made necessary the raising of further loan debentures, with the result that the increase in interest charges this year compared with last year more than accounts for the loss shown.

The stocks on hand have been written down where deemed necessary, and the qualities and gradings of all stocks held are good of their kind. The position on the whole is very satisfactory. Considering the heavy rainfall since January last, which has made the best of the gum-swamps unworkable, and the fact that no accumulations of gum of any extent are held either abroad or in the country districts, we may look forward with every confidence to the increased demand that must inevitably set in.

PURCHASES AND SALES.

During the year kauri-gum to the value of £38,641 17s. 10d. was purchased by the Department, whilst the sales amounted to £21,852 6s. 1d. These figures speak for themselves, and show that, as in previous years, the Department has done its full share towards tiding the diggers over the "slump," which has extended since last year over the greater part of this year so far as medium and low grades are concerned. The purchases exceed those of last year by over £5,000, and the stocks on hand at the 31st March, 1922, are almost double the figure for the previous year.

KAURI-GUM EXPORTS.

For the year ended 31st March, 1922, the export was 3,968 tons, of the value of £391,304, the average price per ton being £98. With the exception of the year 1918-19 this is the smallest tonnage exported for many years, although the value of this year's export exceeds that of several years when a larger tonnage was exported. Last year the average price for the export was £85 per ton, the average for the previous four years being £64. This year's export, therefore, constitutes a new record, not on account of higher prices being obtainable, but purely as a result of the best gradings being in good demand, whereas lower grades during the most of the year were almost unsaleable.

It will be noticed that for the first time since 1914 Germany again figures as a country to which kauri-gum has been exported. It must not be taken that the 58 tons shown as being exported to Germany constitutes the total amount that country has purchased, as it is quite certain that kauri-gum shown as exported to the United Kingdom was reshipped to Germany, and it is also probable that a good deal was shipped to Germany from the United States of America.

Particulars of Kauri-gum exported from New Zealand from 1911 to 31st March, 1922, inclusive.

Country to which exported.	1911.		1912.		1913.		1914.		1915.		1st January to 31st March, 1916.	
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£
United States of America	3,514	209,216	3,894	232,566	3,995	308,456	4,531	316,200	3,312	222,856	974	60,010
United Kingdom	2,378	130,767	2,468	114,640	3,390	187,547	3,335	148,370	1,172	48,585	336	13,548
Germany ..	1,142	34,062	1,053	32,964	833	27,880	373	21,193	..	..	..	..
Canada ..	9	1,061	40	3,370	62	4,618	70	2,114	56	4,550	118	8,972
Australia ..	75	2,559	39	2,487	80	3,933	19	1,720	9	594	5	314
Belgium ..	78	3,990	123	5,088	126	5,120	34	1,519	..	..	..	..
France ..	75	5,774	37	3,037	45	3,995	42	3,599	5	430	..	..
Austria-Hungary	131	3,968	159	4,611	112	2,617	14	329	..	..	..	..
Russia ..	80	1,859	2	184	53	1,725	3	225	21	2,118	..	..
Netherlands ..	55	1,206	42	974	60	2,495	8	664	..	..	..	..
Sweden ..	35	803	35	952	15	420	20	560	..	..	..	..
Italy ..	15	417	15	410	9	300	23	855	..	..	..	..
Japan ..	..	25	1	22	..	..	1	96	..	..	..	..
Hong Kong ..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	7,587	395,707	7,908	401,305	8,780	549,106	8,473	497,444	4,575	279,133	1,433	82,844

Country to which exported.	1st April, 1916, to 31st March, 1917.		1st April, 1917, to 31st March, 1918.		1st April, 1918, to 31st March, 1919.		1st April, 1919, to 31st March, 1920.		1st April, 1920, to 31st March, 1921.		1st April, 1921, to 31st March, 1922.	
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£
United States of America	3,158	218,214	2,316	164,516	1,371	81,914	2,037	157,251	3,224	345,992	2,487	266,922
United Kingdom	1,484	68,378	363	13,982	346	19,977	1,650	90,422	2,544	149,422	1,297	104,094
Germany ..	..	..	..	..	..	..	..	..	..	..	58	3,574
Canada ..	133	7,718	1,929	124,271	572	45,588	1,016	61,005	314	24,481	89	9,641
Australia ..	29	1,982	18	1,577	49	4,820	23	1,936	49	4,802	37	7,073
Belgium ..	..	..	..	..	..	..	..	..	..	..	..	..
France ..	..	..	..	..	..	..	..	..	..	..	..	..
Austria-Hungary	..	..	..	..	..	..	..	..	..	..	..	..
Russia ..	50	3,440	..	..	..	..	..	..	..	..	..	..
Netherlands ..	..	..	..	..	..	..	..	..	..	..	..	..
Sweden ..	..	..	..	..	..	..	..	..	..	..	..	..
Italy ..	..	..	..	..	..	..	..	..	..	..	..	..
Japan ..	..	..	10	506	..	..	..	..	..	..	4	..
Hong Kong ..	8	539	..	..	..	..	..	..	..	..	..	..
Totals ..	4,862	300,271	4,636	304,852	2,338	152,299	4,726	310,614	6,131	524,701	3,968	391,304

The figures for the first quarter's export in the new year form very interesting reading, and clearly demonstrate that the corner has not yet been turned so far as the European trade is concerned. The exports are shown hereunder for that period, month by month:—

Month.	United Kingdom.		Australia.		Germany.		United States and Canada.		Japan.	
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£
April.. ..	146	11,775	1	63	20	961	219	22,873	..	..
May	84	7,505	4	693	..	..	316	30,771	2	162
June.. ..	10	1,147	45	3,574	..	..	563	58,570	..	..
Totals ..	240	20,427	50	4,330	20	961	1,098	112,214	2	162

This gives a total export for the quarter of 1,410 tons, of the value of £138,094, or an average again of £98 per ton, showing that it is still good gradings that are going off.

Although the export to the United States and Canada shows a big increase for June, it will be noticed that the average price per ton is over £100. The business with London has fallen away, and there seems no immediate prospect of any great demand, although the history of the trade goes to show that sooner or later kauri-gum must be had, and the longer the depression continues the better the prices will be when the demand sets in.

When the German exchange was at about 700 marks to the pound sterling there was every appearance of the Germans coming into the market for large quantities of low-grade chips and dust. With the fall in exchange shortly afterwards inquiries ceased, and apparently the Germans are unable to use kauri at anything like the present exchange rates.

PRODUCTION OF GUM DURING 1922-23.

During the last twelve months or so reports have been current in both the United States and Great Britain that a very large increase in the production of kauri-gum is possible the moment a good demand sets in. Figures have actually been given stating, in some cases, the number of thousands of tons in excess of the average output that can be produced at a very short notice. These statements are, of course, not taken seriously by those in the trade here, but abroad they appear to have received more attention. It should be noted in the first place that the statements have not emanated from the Auckland exporters, or even from people well known in the trade, but from speculators whose chief success so far has certainly not been in the direction of producing gum.

The fact of the matter is that a number of companies have been formed to work "chip" areas, and the statements as to enormously increased outputs have been made by persons connected with these companies. Any increased production would be almost exclusively confined to "chips and dust," as in most cases lands being worked by the companies have been invariably dug and redug for gum, and it is only what has been discarded during previous workings that remains to be recovered. Some of these companies have been in existence for a number of years, and large sums of money have been spent on machinery and development-work, but so far I understand the shareholders have not received much return for their investment. The feeling locally in regard to these concerns may be gauged by the fact that two very large companies have given up operations altogether, and the shares of the company which has spent more money and obtained better results than any of its rivals are at present quoted on the Auckland Stock Exchange at 8s., with no buyers, although some time ago they changed hands freely at over £1 10s.

The figures given in another part of this report showing the quantity of gum exported is a fair guide as to the gum coming into Auckland from the country. From information available the holdings of gum other than poor chips and dust in the country districts are not at all considerable. This is accounted for by the fact that during dull periods numbers of diggers leave the fields for other work, and some who stay on the fields do very little digging. As stated in my last annual report, a great many Dalmatian diggers have during the last few years left New Zealand for their own country. These included the best of the Dalmatian diggers, and it is understood that they now find themselves unable to get passports to return to New Zealand.

The work in the gum-swamps depends to a great extent upon the rainfall. During a dry winter the deeper swamps, where the best of the gum remaining is found, can be dug, but heavy rains have been experienced each month since January this year throughout the gumfields, and the swamps have been kept well filled and are generally unworkable. The rainfall for the six months ended 30th June, 1922, amounted to 27.31 in., the average for that period being only 21 in.

Increased prices would undoubtedly have the effect of increased supplies coming forward, as a result of accumulated gum being sold, but until the swamps dry up after the winter the amount of bold gum likely to come on the market cannot be very much increased. It is very doubtful, even with greatly increased prices, if the total output for this year could possibly reach anything like pre-war figures.

ADULTERATION OF KAURI-GUM.

The mixing of other gums with kauri has long been suspected, but it was generally thought that the mixing-in was done at the other end of the world. During the "boom" in 1920 an Auckland exporter of kauri-gum was known to have imported 100 tons of Yacca gum from Australia. An examination proved that he was mixing this in with kauri and exporting the mixture as pure

kauri. The head of the firm was prosecuted, convicted, and fined for making a false Customs declaration. Since then another Auckland firm of kauri-gum exporters who represent a New York house advertised in the Fiji papers for Fiji gums. The result has been that people in Fiji have been sending their gums to Auckland, and cases are known where these gums have been offered for sale as kauri. Other firms, not interested in kauri, are known to have imported Yacca gum for manufacturing polishes and stains. As a result, kauri-exporters who are not interesting themselves in these foreign gums are becoming anxious as to how matters are going to develop. Inquiries made in New York have not elicited that the firms in question were offering these foreign resins for sale there by themselves. It would be a simple matter for a gum broker or dealer at Auckland to mix a little Yacca or Fiji or other foreign gums or resins with kauri and sell to an exporter, who might ship the mixture quite unconscious of the adulteration. This Department is not so much concerned as the average shipper, as nearly all of our gum is bought direct from the producer on the gumfields, and very little business is done with dealers or brokers in Auckland. At the same time the matter is one deserving of immediate consideration, but it is a difficult one to handle. There is really no reason why firms should not deal in Fiji gums. Auckland constitutes an outlet for a large proportion of Fiji produce, and it is only natural that a bid should be made for their gums if there is any profit in the business. It is probable that legislation will have to be enacted to compel all buyers and sellers of these foreign gums and resins to take out licenses and to keep records of all dealings.

KAURI-PEAT OIL.

For many years a little was heard every now and again in regard to the production of kauri-peat oil. During the past few years, however, this subject has received especial attention throughout the Dominion, and inquiries have come forward from many parts of the world asking for information as to the stage of development reached and the possibilities of the oil proposition.

The whole matter was fully threshed out by the Royal Commission which took evidence on various matters in connection with the kauri-gum industry last year. All the information available was carefully considered, the Commission, of which I was Chairman, having amongst its members Professor Worley, Professor of Chemistry at Auckland University College, who had himself done a very considerable amount of research work in connection with kauri-peat oil.

The following extract from the Commissioners' report gives the position very clearly :—

"Although no practical results have yet been obtained in the way of establishing the industry, this is not necessarily due to the project being economically impracticable. The lack of success of the above companies is attributable to a variety of causes, including unforeseen misfortunes, and the failure of the directors to realize the paramount importance, if not the absolute necessity, of complete investigation, both on a laboratory scale and on a semi-industrial scale, before launching out on an industrial undertaking. There is still almost complete ignorance of the nature of the oils produced and of their commercial value. More complete investigation should have been carried out before the formation of companies, whose shareholders are impatient at the necessary slowness of scientific investigation. Further, the carrying-out of scientific investigation has some disadvantages to a company, inasmuch as no one company has a monopoly of the gumfields, and discoveries made at great expense are available to other companies with which the investigating company may be in competition."

The Commission recommended State aid in connection with research work in regard to the distillation of peat from various localities, and the chemical investigation of the nature of the products obtained, as well as the distillation of or extraction of oils obtained from swamp timber, and the nature of the oils produced. Nothing has been done so far, and it can be taken that the production of kauri-peat oil on a commercial scale is not at all likely in the very near future.

SALT WASHING OF KAURI ON THE GUMFIELDS.

It has been recognized in the trade for more than a generation that the difference in the specific gravity of kauri-gum and of the dirt recovered with it in the usual methods of digging is so great that a solution can be made—of common salt, for example—the specific gravity of which is slightly higher than that of kauri-gum and yet lower than that of the dirt. The gum will therefore float in the solution and the dirt sink. This is all right so far as the large pieces of gum are concerned, but it is almost wholly the small pieces—nubs, chips, seeds, and dust—that have a dirt content as at present recovered, that require treatment. By using a salt bath for these latter gradings it was found that a large proportion of the dirt floated as a result of air voids which are found in even the smallest particles of earth. Dr. Maclaurin solved the problem by placing solution and "dirty" gum in a vessel and exhausting the air. The cells in the dirt then filled with brine and the dirt sank, the gum, of course, still floating, and the recovery of the gum and dirt separately was an easy matter.

During the past year some gum-washers in the Wairoa district have been rewashing very dirty heaps of chips and dust which were put through during the "boom" in 1920, when anything at all was being sold on the Auckland market. It is doubtful if some of these accumulations contained as much as 40 per cent. of gum, and there was usually a good percentage of sand left in with the chips. These piles have been washed in salt solutions of varying strength and the floaters skimmed off. The chips and dust thus obtained have still a very considerable dirt content, although quite saleable in normal times.

Following on the lines of the Maclaurin process, a new method of treating the gum was developed at Ruakaka. Here it was found that when the material was taken from the "rubbling" tubs the air had not then got into the cells in the dirt, and the organic matter other than gum was water-

logged, and both freely dropped in a salt solution which floated the gum. Credit for having originated the idea is understood to be due to Messrs. McGrath Brothers, of Ruakaka, who, at Mangawai, some years ago, were amongst the first diggers to put the rubbling process into use.

This process gives much promise, as the whole operation can be carried out with practically no plant. One digger has made a very good job of it by simply using a butter-box to float and sink in. It is not only the low cost of handling that interests the digger, but the fact that the "cleaning up" of his gum is made so much easier and can be done in a very much shorter time, and there is not the loss of gum in the "winding." By this process the digger dries and handles only the actual gum and a small percentage of fibre and wood that float with it and which constitute a very small bulk compared with the amount dried and handled under the old process. Gum is not soluble in water and will drain almost dry, whereas the dirt and wood recovered with the chips in the ordinary way are saturated and have to be dried right through to make even a passable job of cleaning and winding. The cost of the salt, which cannot be recovered, and the work entailed in washing out and recovering as much of it as possible, offset the advantages somewhat. Very little gum treated in this way has reached us, but there seems to be no doubt that the process is a very practical solution of the "cleaning" difficulty, in some localities at least. Careful tests made from sack lots sent in showed a gum content of about 90 per cent. real gum after allowing for moisture.

In considering this process of cleaning there are two very important facts to be reviewed. In the first place there is an undoubted demand for chips and dust that are anything but free from foreign matter. Grades having a gum content ranging from 40 to 65 per cent. are in much more demand than very clean grades at a correspondingly higher price. The Department had gradings produced by the MacLaurin process, having a gum content of about 98 per cent. real gum less a small moisture content, on spot in New York for a considerable period. Very satisfactory reports were received from users as to quality, but the prices were the stumbling-block. The chips and dust gradings were not good enough for the varnish-maker, and were priced too high for the linoleum firms. Quite recently a sample was submitted to an American manufacturer which ran about one-half gum, and after a test he openly stated that the sample was too good, and asked for another sample showing a considerably lower gum content. Germany can go better than this, and can apparently use low grades that the American and British firms cannot touch. Perhaps it is put to some use other than linoleum-making, but there is no information available on the point. At all events, the demand for grades that contain a varying and large dirt content is very firm, and must be met by the exporter at this end. No matter what processes are worked up in New Zealand a "dirty" chip and dust will still sell, and sell well, so long as the user at the other end is as willing and anxious for it as he is to-day. It must not be thought, however, that because the manufacturers call for low gradings that they are not willing to buy better classes. This Department has freely sold American varnish and linoleum firms gums of the highest gradings in large quantities, and at the present time the demand for the best grades is greater than the supply. The position as regards the British firms is just the same. Still, there seems to be a large and increasing demand for cheap linoleum, and the manufacturer, to meet this demand, has in the main to turn to cheaper raw materials, even though this involves the production of an inferior article.

The second viewpoint to be considered is that a salt solution will not recover all the gum found in some districts. Most of the chips and dust purchased by the Department, and also samples from many lines not purchased, are tested out for the real gum content. Chips from some districts can be treated in a moderately strong salt solution and all the gum floated off. Other chips will contain a very appreciable percentage of gum that will sink in the strongest salt solution (sodium chloride). Usually chips found in one district will average much the same specific gravity, but this cannot be taken for granted, as at times variations occur in results obtained from chips dug in different parts of very small areas. It is a fact that chips and dust from Ruakaka, where this new process commenced, float off in salt solutions as weak as or weaker than those from almost any other district. In testing samples from Ruakaka a salt solution of 35° Twaddell (specific gravity 1.175) will float practically all the gum. In testing chips from another particular field, where a good supply is being turned out, it is necessary, to float practically all the chips, to use a solution of 54° Twaddell (specific gravity 1.27). By using the salt process about 10 per cent. of the $\frac{1}{4}$ in. chips and dust would probably be lost on this field.

Some hundreds of samples have been tested by the Department, with the result that solutions of strengths varying from 34° to 54° Twaddell are necessary, other solutions being used instead of salt for strengths above 38° Twaddell. Gum from each district required a careful examination to ascertain the strength necessary. In the ordinary way a digger would find it difficult, if not impossible, to keep up a salt solution as strong as 38° Twaddell, so that all gum that did not float at that strength would be lost. The stronger the salt used the more foreign matter is floated off with the gum, so that the digger using this process must find the strength which will give the most return, and he may find it best to be willing to lose a certain percentage of chips and dust, if necessary, to avoid floating off too much fibre and wood, which would cost more to "wind" out of the gum after drying than the extra gum saved would be worth. The fact also remains that the higher the strength of a salt solution the more difficult it is to keep up to that strength, and more salt would be used. These are matters which will only right themselves as a result of experience. To that end the services of this Department are freely at the disposal of any *bona fide* inquirer. Twaddell hydrometers to register from 24° to 48°, and which will cover all requirements of gum-diggers using this process, can be purchased in Auckland for about 5s. 6d. Diggers are strongly urged in their own interests to use a hydrometer instead of the usual potato, which is not nearly exact enough. If the solution is too strong the digger is wasting time and money, and if too weak he is losing more chips by sinking than reckoned on.

So far as "rubbled" gums are concerned, there seems to be no doubt that this method is the best so far used for cleaning grades from the $\frac{1}{4}$ in. size upwards, as the mud balls, charcoal, and wood almost all sink. Some diggers propose treating only these grades in salt solutions, and getting up the chips and dust just as is done in the ordinary way; others are proposing to put the whole yield through a salt bath, considering that there need not be the same attention given to getting so much of the dirt out when in the rubbing-tub. The decision on the part of the digger as to how he will treat his material from the rubbing-tub will probably depend on the specific gravity of the chips, as well as the supply of water at hand. The gum and chips treated in a salt bath will require to be thoroughly washed to free the grades from salt. This is merely a matter of washing, but in localities where water is scarce it may be impossible to wash the chips sufficiently, and it will remain for the digger to arrange, if he can do so, with some one in Auckland to receive the chips and give the final washing there. To those diggers who have a good supply of water the final washing, after as much salt as possible has been recovered, should take the form of "floating and sinking," and the gum can be automatically graded at the same time into sinkers and floaters.

When discussing the question of cleaning gum in the salt bath it is worthy of mention that, in the case of chips and dust that will sink in the strongest salt solution possible, the bolder pieces from the same tubful will float in a comparatively weak solution. Just why this is so is not certain, but, judging from the brittleness and the colour of the chips that salt cannot float, these at some time have been affected by fire, and it is possible that some chemical change has taken place. Pieces of gum of all grades and sizes have been tested at this office, and no single piece from nub size upwards has been found to sink in a salt solution. Samples have been taken from chips and gum of the heaviest class, and investigation is now being made, and any results obtained will be published next year. In the meantime it can be taken for granted by diggers that very little loss, if indeed any, will occur through the sinking of any gum that will not stop on a $\frac{3}{8}$ in. sieve. If any such gum is found it is hoped that the digger will forward to this office a sample of both chips and gum, so that an examination may be made and a reason sought.

For the purposes of cleaning gum any brands of commercial salt such as used by butchers will do. It will be found that some brands contain a larger percentage of impurities which are not soluble in water, and this is usually reflected in the price. Salt-baskets should always be used, instead of putting the salt into the water. A rough wooden frame covered with ordinary scrim such as is used for papering houses will do admirably, but ordinary sacking will be found too closely woven for the purpose. The idea is to suspend the basket full of salt in the vessel containing the water, and when sufficient strength has been obtained the basket is withdrawn. By this means the solution can be got to exactly the strength required, and there is no unnecessary waste of salt, whilst the insoluble portions remain in the basket and can be thrown out. If diggers find any difficulty in obtaining salt in quantities at reasonable prices, full information can always be obtained from this office for the asking. The recovery of the salt from the materials treated will perhaps be somewhat irksome to the digger, but it will be found a costly practice, and one that cannot be afforded, to throw away too much salt. As the salt is soluble in water it could all be washed out of the gum and dirt and recovered, but this would involve the use of large receptacles, as the final washings would contain only a very small salt content. The storage available will mostly limit the amount of salt a digger in a small way can recover. Considering that plenty of firing is generally obtainable at the workings it is worth the digger's while to consider boiling the weak solutions in tins and getting rid of the excess of water in that way. At all events, it will pay handsomely to go to a good deal of trouble to recover the great bulk of the salt used, and this can easily be accomplished. To this end the use of a hydrometer as recommended in the foregoing will be found indispensable.

R. P. GREVILLE, Kauri-gum Superintendent.

The Under-Secretary for Lands.

STATEMENT OF ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 1922.

KAURI-GUM INDUSTRY ACCOUNT.

Receipts and Payments.

<i>Receipts.</i>	£	s.	d.	<i>Payments.</i>	£	s.	d.
Cash in hand, 1st April, 1921	7,401	0	3	Wages, &c., to workmen, overseers, and gum-buyers	3,017	17	3
Sales of kauri-gum	22,942	11	5	Plant, machinery, stores, &c.	1,203	5	3
Miscellaneous receipts	50	6	7	Purchases of kauri-gum	39,671	19	8
Interest on inscribed stock	87	0	3	Freights, &c.	3,894	10	11
Debentures raised	22,000	0	0	General and office expenses, administration, &c.	1,540	6	7
				Interest on loan debentures and sinking fund	1,207	12	8
				Cash in hand, Treasury, 31st March, 1922	1,945	6	2
	£52,480	18	6		£52,480	18	6

TRADING ACCOUNT.

	£	s.	d.		£	s.	d.
To Gum on hand, 1st April, 1921 ..	34,042	8	1	By Gum on hand, 31st March, 1922 ..	60,276	18	7
Purchases of gum ..	38,641	17	10	Sales of gum ..	21,852	6	1
Wages ..	2,920	15	5	Gum sent on consignment ..	366	18	1
Freights inward ..	2,209	2	2				
Balance, being gross profit to Profit and Loss Account ..	4,681	19	3				
	<u>£82,496</u>	<u>2</u>	<u>9</u>		<u>£82,496</u>	<u>2</u>	<u>9</u>

PROFIT AND LOSS ACCOUNT.

	£	s.	d.		£	s.	d.
To Freights outward ..	1,602	13	8	By Trading Account ..	4,681	19	3
General expenses ..	178	13	9	Timber Account ..	4	12	6
Cables ..	49	11	0				
Gum cases and sacks ..	393	7	7				
Fire insurance ..	205	12	10				
Printing and stationery ..	17	12	10				
Depreciation ..	77	7	9				
Travelling-expenses of Superintendent and staff ..	24	9	6				
Rent ..	300	0	0				
Consumable stores ..	31	13	0				
Salaries ..	645	8	4				
Balance carried down ..	1,160	1	6				
	<u>£4,686</u>	<u>11</u>	<u>9</u>		<u>£4,686</u>	<u>11</u>	<u>9</u>
To Balance on 1st April, 1921 ..	4,154	4	3	By Balance brought down ..	1,160	1	6
Interest on debentures ..	2,879	16	1	Interest on inscribed stock ..	0	14	2
				Balance carried to balance-sheet ..	5,873	4	8
	<u>£7,034</u>	<u>0</u>	<u>4</u>		<u>£7,034</u>	<u>0</u>	<u>4</u>

BALANCE-SHEET.

<i>Liabilities.</i>	£	s.	d.	<i>Assets.</i>	£	s.	d.
Loan Account, Debentures issued under Kauri-gum Industry Act, 1914 ..	75,000	0	0	Land at face-works and elsewhere, with buildings, fences, and improvements ..	5,256	18	7
Less sinking fund in hands of Treasury ..	102	12	8	Vacuum tank, fittings and plant, and royalty short-workings ..	2,900	6	10
	<u>74</u>	<u>897</u>	<u>7</u>	Plant and store fittings ..	295	12	6
Crown Land Account ..	500	0	0	Tools, Auckland and depots ..	61	17	7
Sundry creditors for supplies, &c. ..	177	13	2	Live and dead stock ..	58	14	3
Sundry creditors for gum purchases ..	713	2	0	Furniture and office fittings ..	117	6	5
Interest on debentures ..	2,658	2	9	Sacks, gum-cases, and consumable stores ..	629	12	8
				Charges paid in advance ..	100	12	8
	<u>£78,946</u>	<u>5</u>	<u>3</u>	Gum on hand ..	60,276	18	7
				Gum on consignment ..	1,429	14	4
				Cash on hand ..	1,945	6	2
				Profit and Loss Account ..	5,873	4	8
					<u>£78,946</u>	<u>5</u>	<u>3</u>

R. P. GREVILLE, Kauri-gum Superintendent.

I hereby certify that the balance-sheet and supporting statements have been duly examined and compared with the relative books and documents submitted for audit and correctly state the position as disclosed thereby.—G. F. C. CAMPBELL, Controller and Auditor-General.

Approximate Cost of Paper.—Preparation, not given; printing (725 copies), £12.

By Authority: W. A. G. SKINNER, Government Printer, Wellington.—1922.

Price 6d.]

