

1919.
NEW ZEALAND.

DEPARTMENT OF LANDS AND SURVEY:
RANGITAIKI LAND DRAINAGE.

REPORT FOR THE YEAR ENDED 31st MARCH, 1919, TOGETHER WITH STATEMENT
OF ACCOUNTS.

*Presented to both Houses of the General Assembly pursuant to Section 10 of the Rangitaiki Land
Drainage Act, 1910.*

SIR,—

Department of Lands and Survey, Wellington, 14th July, 1919.

I have the honour to submit herewith the report upon drainage operations in the Rangitaiki Plains for the year ended 31st March, 1919, pursuant to the provisions of the Rangitaiki Land Drainage Act, 1910.

The report of the Chief Drainage Engineer, Mr. J. B. Thompson, is attached hereto, from which it will be seen that steady progress has been maintained during the year in spite of the difficulty experienced in securing new machinery owing to war conditions.

The accompanying statement of accounts and balance-sheet show the financial transactions for the year and the position of the account as at the 31st March last.

I have, &c.,

T. N. BRODRICK, Under-Secretary.

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

REPORT OF CHIEF DRAINAGE ENGINEER.

SIR,—

In accordance with the provisions of the Rangitaiki Land Drainage Act, 1910, I have the honour to submit my report on the drainage operations for the year ended 31st March, 1919.

The year ending March, 1919, has seen considerable improvement in drainage matters, and the dry season has helped the works very much. One great drawback to the general appearance of the unwatered country is the large holdings, several settlers having a considerable acreage on which not even temporary drains have been constructed, thus spoiling the general appearance of the whole block. However, now that several properties are being cut up smaller and changing hands at high figures, more work will of necessity be done on the land to give return for the outlay, hence in the future the appearance of the country should be very much improved under active cultivation. A great deal of fall has been taken up in many drains, and the improvement in the drainage is increasingly apparent; land that a short time ago was in raupo, flax, &c., is now carrying good maize and grass. A considerable amount of timber has been met with in nearly all the drains that have been deepened, entailing a free use of explosives in order to make a satisfactory job.

A deviation from the original Kopeopeo cut was made to give an outlet to the Rangitaiki River, through Sections 49, 50, and 51, Rangitaiki Parish, and it has been very successful, giving considerably more freeboard than formerly, and eventually the greater portion of the eastern end of the district will discharge into this cut. Adjacent land which for years has been badly water-logged is now comparatively dry, and two large lagoons have almost entirely disappeared. The road on the east bank of Rangitaiki River which was formerly under water for the greater portion of the year is now dry, and the water has fallen fully 5 ft. A new drain was cut from the eastern end of the lagoon in Sections 49 and 50 to the junction of the western drain and Kopeopeo outfall. Owing to extra fall taken up this drain became dry, but when the dredge enlarges it—very shortly now—a direct outfall for the western drain will be given. Fall has been taken up in both the eastern and western drains, which should be of considerable help to the country southwards from the Kopeopeo cut. Practically every drain has been cleaned out, and in some cases deepened.

EASTERN DISTRICT.

Drainage in this district has been chiefly effected by the Kopeopeo outfall deviation (previously referred to) through Sections 49, 50, and 51 to the Rangitaiki outlet. The effect of this outfall is felt over a wide expanse of country, and eventually Reid's central drain, western drain, and the eastern drain will all discharge into this cut. More especially was the land affected in Sections 48, 49, and 50, Rangitaiki Parish, which for years had been badly water-logged, but

which are now comparatively dry. A lagoon formerly of some small extent in Sections 49 and 50 is now practically empty, and the large lagoon in Sections 62 and 63 has almost entirely disappeared. It is expected that when the dredge again reaches this lagoon, after taking up more fall, it will totally disappear. A new drain was cut from the eastern end of the lagoon in Sections 49 and 50 to the junction of the western drain and Kopeopeo outfall. With the lowering of the water in the lagoon and surrounding country this drain became dry, but No. 3 dredge will shortly be enlarging the drain into an outfall. All the drains in this district have been periodically cleaned out, and in many cases have also been deepened. The Te Rahu—Mangaroa outfall and Whakaire drains have also been thoroughly cleaned, and deposited silt has been thrown out, giving a much better fall than previously.

WESTERN DISTRICT.

The most important new work in this district was the deepening of the Omehu and the Omehu adjunct drains from their junction with the Omehu dredge-cut southwards. The proposed Omehu deviation is now in course of construction, and, although a hard belt of country kept back dredge No. 4 for a time, it is now proceeding very satisfactorily. The central drain through Sections 143, 139, 138, and 132A, Matata Parish, has been deviated at the angle on the northern boundary of Section 139, and runs by a more direct route to the Tarawera western drain. On this side of the swamp also all existing drains have been thoroughly cleaned out periodically. The large drains on the southern end of the swamp are causing a good deal of trouble on account of the sandy nature of the soil, but they are being considerably enlarged and a good deal of fall taken up, which has benefited the surrounding country to a very great extent. The Awaitei drain was also cleaned out and deepened.

PRIESTMAN DREDGES.

During the year dredge No. 3 completed the excavation of the Kopeopeo outfall deviation to the Rangitaiki outlet, and deepened it on the return journey. 110 chains were covered on the way to the Rangitaiki outlet, and 85 chains on the way back, a total of 114,050 cubic yards of spoil being excavated at a cost of £2,402 19s., averaging 5·05d. per cubic yard.

Dredge No. 4 proceeded with the Omehu outfall drain, but struck very hard dredging country and a great amount of timber during a greater part of the year. A total of 102,825 cubic yards of spoil was excavated at cost of £2,542 18s. 10d., averaging 5·93d. per cubic yard.

The following table shows the total amount excavated, with the cost per cubic yard, for the past seven years:—

	Cubic Yards.	Cost per Cubic Yard.
1912-13	31,486	4·12d.
1913-14	272,370	3·07d.
1914-15	268,760	3·48d.
1915-16	224,740	4·54d.
1916-17	261,751	4·36d.
1917-18	320,614	3·72d.
1918-19	229,659	5·70d.

The cost per cubic yard for this year is rather high, but this is accounted for by the great increase in costs of coal, freights, repairs, material, and wages, and the depth of dredging.

KOPEOPEO OUTFALL DEVIATION.

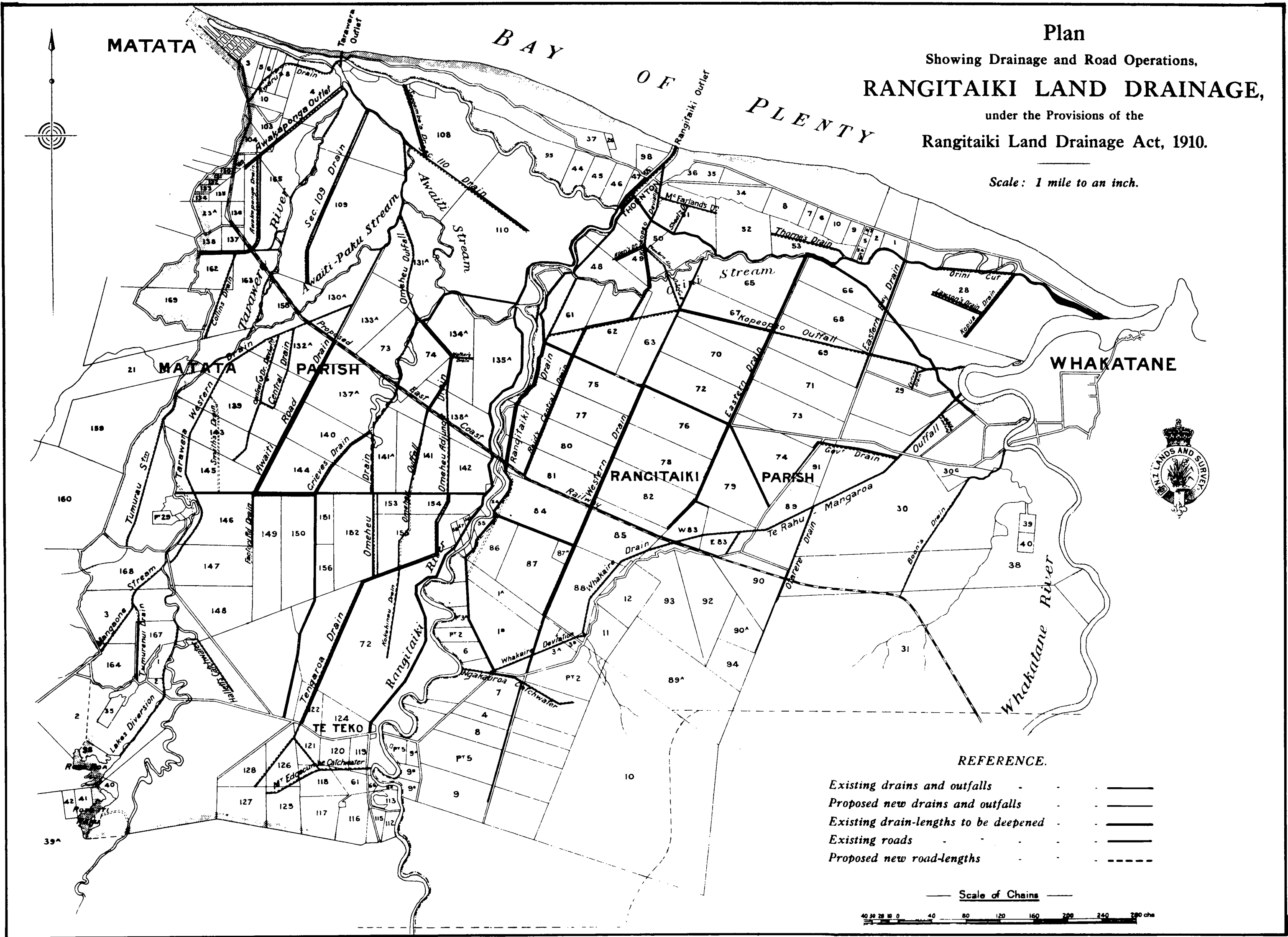
During the period Priestman No. 3 continued the Kopeopeo outfall deviation to the Rangitaiki outlet, a distance of 100 chains, and then, after a complete overhaul of machinery, started back up the cut, deepening it considerably *en route*. A hard bank of pumice and sand was encountered early on the return journey, and but slow progress was made, but on working clear of this bank the dredge pushed on at a good rate, and by the end of the period had covered 85 chains.

OMEHU OUTFALL.

Priestman No. 4 did not make such marked progress during the period as did Priestman No. 3, for difficult country was encountered practically throughout the year. A large quantity of sand was removed from the Omehu which on coming out of the chutes was inclined to run back into the cut, so extra work was entailed. Added to this, heavy timber was met with in the bottom of the cut, necessitating the free use of explosives to break and dislodge the stumps and logs of considerable size. Owing to the height of the banks on this cut it was found necessary to have the old spoil-banks removed by means of wheel scoops. About the middle of the period a dam had to be constructed behind the dredge to allow of better working.

ROADS.

As no finality was reached in the arrangement between the Whakatane County Council and the owners of land to be taken for Rangitaiki River East Bank Road, bounding Section 86, work on this portion was delayed until the latter end of the period, when side drains were cut and the road-line cleared of willows ready for formation. Two portions of the Western Drain Road—viz., from southern boundary of Section 84 to the main Whakatane—Te Teko Road, and from the northern boundary of Section 78 to the northern boundary of Section 76—were constructed. From the Western Drain Road at its northern extremity McLean's Road runs in an easterly direction, and this also has been formed up to the eastern drain where it joins Luxton's Road. From the junction of McLean's Road and the Western Drain Road, Feist's Road runs off to the west along the northern boundary of Section 75, and formation of this is now nearing completion. Altogether a total of four miles and a half of road have been wholly formed, which total does not include work carried out on the Railway Service Road (or, more properly speaking, the Main East Coast Road).



RAILWAY SERVICE ROAD (MAIN EAST COAST ROAD).

This road has been formed from the western drain as far as Awakeri, a distance of 160 chains, but is not yet open for traffic. The road has been pumiced in all the soft portions, and formation, &c., is in splendid order. Another portion of this road—viz., from the Awaiti Road towards the Tarawera River, a distance of 50 chains—has been in use for some considerable time, this portion of formation being completed first.

Drains have been cut on the wet portions of the Railway Road between the Rangitaiki River and the Awaiti Road, all spoil being thrown into centre of road-line, and formation-work will be gone on with almost immediately. Arrangements have also been made to fence.

After this portion is finished a start will be made with the portion from Tarawera River towards Matata, but it will be very expensive formation, as, owing to the wet nature of the country, material will have to be carted for long distances.

The road will not be of much use to the public until the Tarawera and Rangitaiki Rivers are bridged. The work done on this road is paid for out of special vote.

BRIDGES AND CULVERTS.

The bridge gang has again been busily employed during the period, and the foreman carpenter is to be complimented on the finished work he has turned out. The goods-sheds at Matata were removed and re-erected in their new positions on the Tarawera outlet, and a small wharf erected in front of the new goods-shed on the Rangitaiki outlet. This will greatly facilitate the discharge of cargoes from trading-vessels, an item which in the past has caused a great deal of inconvenience.

A substantial bridge has been erected over the Kopeopeo deviation on the main Thornton-Whakatane Road, and also a large sill bridge over the same deviation near its junction with the Rangitaiki outlet. While the dredge was excavating cut across the main Whakatane Road a deviation to the north of the road was made entailing the erection of a large sill bridge, and on the return of the dredge up the cut this bridge was dismantled and re-erected on a deviation on the south side of main road. Another large sill bridge was erected across the Kopeopeo deviation in Section 51.

In addition to the foregoing a large number of smaller sill bridges and several flood-gates have been constructed.

During the latter portion of the period bridge-building operations have been considerably hampered on account of the difficulty in obtaining suitable timber.

DRAINS IN OPERATION.

The total length of drains in operation to date is as follows: Dredge-cuts, twenty-one miles; main drains, eighty-six miles; road-drains, seventeen miles.

The Jugo-Slav labour has made a great difference in the amount of work done during the year, and as a consequence the majority of main drains have been considerably enlarged and deepened. All drains are now in first-class order.

WORKSHOP, THORNTON.

During the period the workshop staff has been kept busily employed on repair work for the various dredges, launches, &c., used on the works, and much work which should in the ordinary way have been sent to engineering firms in Auckland is now dealt with in the local shop.

BUILDINGS.

A two-roomed whare used as store-shed on the west bank of the Rangitaiki outlet was dismantled, and the iron and timber used—in conjunction with fresh supplies—to erect two sheds on the east bank of the outlet near the headquarter's building. The house occupied by Dredge-master Strong was moved to a site adjacent to the Rangitaiki Ferry, and the house was improved by the addition of one small room. Otherwise the buildings are the same as last year, the total number now being nineteen.

FLOATING PLANT.

This consists of two Priestman dredges, two ferry-pontoons, one snagging-barge, one towing-barge, three oil-launches, and various small punts, boats, &c. The timber in the pontoon at the Tarawera Ferry is in very poor condition, but as the Whakatane County Council has now made a start with the bridge over the Tarawera River there is every prospect of this ferry being done away with. The Hammond dredge was put out of commission and dismantled. The remainder of the plant is in good condition.

SURVEYS.

The survey staff have been engaged during the period mostly on engineering work, such as running trial levels, laying out new drain-lines and dredge-cuts, and work of a similar nature. Several small surveys were also made. Altogether a total of forty miles of levels were taken during the period.

SUMMARY.

Excavation by dredges	...	...	...	229,659 cubic yards.
New outlet drains	...	...	...	11 miles.
Deepening and widening outlet drains	...	...	...	23 miles.
Cleaning outlet drains	...	...	...	47 miles.
Roads formed (new)	...	...	...	4½ miles.
Levels taken	...	...	...	40 miles.

General improvement and maintenance to existing works, together with numerous other minor services.

WORKS EXPENDITURE FOR THE YEAR.

The total amount expended on the works during the year was £28,810 16s. 11d.; this includes wages, hire of teams, repairs, supplies, &c. Of this amount, £22,045 8s. 8d. was paid out of Imprest Account. Piecework contracts totalled £8,447 15s. 6d., day labour of all descriptions £10,717, hire of teams £1,436 8s. 10d.

PRINCIPAL WORKS PROPOSED.

The principal works to be carried out during the next financial year are as follows:—

1. Continuation Omehu outfall.
2. Continuation Kopeopeo deviation.
3. Dredging western drain deviation.
4. Dredging Reid's central drain.
5. Construction of White-pine Bush Road and drain.
6. Improvement to Orini River.
7. Formation of Railway Road.
8. New outlet drains and general development-work.

GENERAL.

Dredging machinery has been acquired for placing on the Tarawera River, and is now being rebuilt. A powerful boiler is being made for this machine, as none was included in the purchase. Other important structural alterations are also being made, but owing to shortage of boiler-plates, skilled labour, and the influenza epidemic much delay has arisen at Port Chalmers as regards this work. However, delivery will be given very soon now.

I would have preferred a dredge of the Dipper type from America, but it was impracticable owing to war conditions and difficulties of getting delivery. Probably from now on there will not be this disability, but certainly the next best thing was done in obtaining the Kingston plant and rebuilding it.

The wages vouchers for labour, contracts, and hire of teams, &c., are prepared at Thornton and finally dealt with in the Auckland office, and accounts for supplies, &c., are prepared in the latter office.

The officer in local charge is Mr. J. H. Treseder, Land Drainage Engineer, who has been very zealous and energetic in carrying out his duties.

I have, &c.,

J. B. THOMPSON,

The Under-Secretary for Lands, Wellington.

Chief Drainage Engineer.

RANGITAIKI LAND DRAINAGE ACCOUNT

Statement of Transactions during the Year ended 31st March, 1919.

Receipts.		£	s.	d.	Expenditure.		£	s.	d.
Balance in hand at 1st April, 1918	..	4,269	16	2	Drainage-works, stop-banks, clearing channels, and other expenditure incidental to drainage operations	..	27,345	18	8
Debentures issued under Rangitaiki Land Drainage Act, 1910	..	25,000	0	0	Management and engineering expenses	..	621	18	3
Rents	..	10	0	0	Travelling-expenses	..	109	6	11
Thirds and fourths	..	12	17	6	Compensation for purchase of Native land under section 8 of the Rangitaiki Land Drainage Act	..	226	3	11
Rates—	£ s. d.				Machinery and plant	..	733	13	1
Year 1917-18	..	3,876	8	0	Balance in hand, 31st March, 1919	..	4,379	2	8
.. 1918-19	..	247	1	10					
		4,123	9	10					
		<u>£33,416</u>	<u>3</u>	<u>6</u>			<u>£33,416</u>	<u>3</u>	<u>6</u>

BALANCE-SHEET.

Liabilities.		£	s.	d.	Assets.		£	s.	d.
Debentures—Rangitaiki Land Drainage Act, 1910	..	145,000	0	0	Drainage-works—Expenditure in connection therewith, including wages, supplies, administration, engineering expenses, and depreciation of plant	..	129,470	1	2
Consolidated Fund—Interest paid	..	13,666	2	9	Redemption of debentures—Rangitaiki Land Drainage Board	..	2,100	0	0
Unpaid purchase-money—Sundry Natives	..	488	16	0	Interest on debentures	..	10,109	14	7
Suspense Account	..	152	4	4	Investments—Public Trust Office	..	904	5	4
Loan Redemption Account	..	4,173	8	8	Land for Settlements Account	..	20	0	0
		<u>£163,480</u>	<u>11</u>	<u>9</u>	Machinery, plant, tools, and stores	..	8,510	4	0
					Sundry ratepayers	..	7,987	4	0
					Cash	..	4,379	2	8
							<u>£163,480</u>	<u>11</u>	<u>9</u>

J. H. O'DONNELL, Chief Accountant.

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