





To date some 189 chains of the canal is dredged, while the stripping ahead of dredging is now 85 chains. The stripping has exposed a heavy layer of timber throughout, and some of this has been "shot" out. Considerably less depth of peat has been found at the end of stripping than the original soundings taken some eight years ago roughly indicated.

#### WAIKAKA CANAL.

During the year an opportunity was taken while the river was low to deepen with dredger No. 2 the northern end of this canal. All traffic is now carried by this waterway, but some further little improvement will be made later on. The length of completed canal is 65 chains.

#### PIAKO RIVER IMPROVEMENTS.

The works detailed against "Priestman dredges" practically covers this heading.<sup>5</sup> A special grant of £2,000 per annum for two years has been obtained for this work, out of which an amount of £465 0s. 9d. has been expended for dredging, covering some four months of the past year, the cost of the remaining eight months' dredging, &c., being a charge against the Hauraki Plains Settlement Account. It is intended to make substantial improvements in addition to the present widening of the river, and some bad bends will be cut through to ease the river in flood-time. The work is very necessary owing to the extra amount of water being discharged into the Piako River through the active operations of the various Drainage Boards up-country.

As mentioned before, some 4½ miles of river has been greatly improved by widening, but it will require some four months' work yet to complete the stretch. The fact of access roads from foothills trending towards the river makes the matter doubly important, as the dangers of navigation to different wharves during winter months will be greatly abated.

#### STOP-BANKS.

The present total length of stop-banks (or levees) completed to date is 27 miles 42 chains. No new banks were built during the year.

Considering everything, these stop-banks have stood remarkably well, and they are becoming quite consolidated. Where the country is "green" constant attention is paid to stop-banks, and they are maintained and improved from time to time. Close flax-planting at base of banks has proved very effectual in preventing erosion, and grass-seed is sown as required, and both will be continued in the future.

#### FORMED ROADS.

The total length of formed cart-roads—i.e., drains on both sides of roads, along with formation—is now 50 miles 28 chains, of which amount 5 miles 43 chains was converted from road-bank tracks during the past year, and some 5 miles 49 chains being new construction.

Drays and scoops have been utilized in blinding with sand some 4 miles 29 chains of peaty road formation, this being included in totals. Some 10,000 cubic yards of sand was used for blinding.

The time is rapidly approaching when the question of metalling a considerable length of the clay roads will be urgent.

#### ROAD-BANKS.

The total length of road-banks—i.e., spoil from road-drains removed about 4 ft. from edge thereof and spread—is 13 miles. These banks are from time to time converted into formed roads, and are necessarily a fluctuating quantity.

#### DRAINS IN OPERATION.

The total mileage of drains in operation is now 276 miles, and includes stop-bank drains, road-drains, subdivisional drains, service-drains, and outfalls of all descriptions. This is an increase of 18½ miles during the past year.

At Waikaka and Waitakaruru very heavy work was experienced in deepening and widening several miles of old drains in the peat country. These old drains were practically closed up: the length so deepened and widened is given under the heading of "Works performed."

#### WAITOA AND PIAKO RIVERS: SNAGGING.

The Waitoa River has now been snagged for some 15 miles 75 chains, the length covered during the past year being 6 miles 45 chains. All this has been done with a special plant located on a floating pontoon. This work will shortly stop for the season, and be taken up again per medium of bullock-teams "snigging," as the banks are now too high to economically work the barge.

The total length of Piako River upper reaches now snagged is 8 miles 25 chains, the length covered this year being 1 mile. It will be advantageous to do about 2 miles more on this river.

Both these works have been done out of special grants.

#### WHARVES.

The total number of wharves now in position is fourteen, three of these being erected during the past year, and one purchased.

Extensions were made to two of the above wharves, and also six low-water stages added to same. Alterations are about to be made to the lately acquired Waikaka jetty, and a breastwork will be built at the south end of the Puhanga spillway.

#### FLOOD-GATES.

The total number of gates now in position is fifty-seven, some five gates having been erected during the year. The simple type of gate is still being put in. All these gates will require to be renewed from time to time in reinforced concrete as circumstances warrant. At the outlets of flood-gates some twelve flumings have been laid down. Improvements, &c., have been made to flood-gates as required, and all are now in very fair order.

## BRIDGES, CULVERTS, ETC.

The total number of sill bridges to date is ninety; small bridges on piles, eight; one two-span bridge; and culverts, four.

## PRIVATE TELEPHONE-LINE TO WORKS.

This line of 14 miles has now a considerable amount of work on it, as, in addition to our own, it carries wires of the Post and Telegraph Department. The private wire has been maintained as found necessary.

## BUILDINGS.

The total number of buildings on works comprises thirty-seven of all classes, and they used as workmen's quarters, wharf-stores, &c. Of this number four wharf-stores were built during the year. All are in very fair order.

## FLOATING PLANT.

This consists of the following: Two Priestman grab dredgers complete, one steamer, four oil-launches, three pontoons, and sundry small punts. All are kept in good repair.

## ARTESIAN BORING PLANT.

To date some fifty-nine bores have been sunk for settlers and the works. Of this number twenty-eight were sunk during the year, one of these being situated on the pound-site, the balance being for settlers. Flows have ranged from 3,000 gallons to 100,000 gallons per diem.

The water still continues to be mineralized, but seems to suit stock very well indeed. Schedules of twenty-eight bores are attached hereto, and are of interest geologically.

The bores are being sunk for settlers on easy terms extending over periods that suit them. Repayments to date total £210 16s. 8d., of which amount £179 17s. 9d. was received during the year under review. All outstanding amounts will be collected in due course, so that no loss will accrue to the account. Only one plant is used on the works, and the value of bores sunk during the year is £646 18s. 6d.

## LIGHT TRAM-LINE.

Owing to the strikes on the Continent the oil locomotive only arrived quite lately, and as the season was late the line to be laid down for purposes of carrying spoil to ballast peat roads was not proceeded with. Instead of this the rails and sleepers are to be used in connection with transport of road metal on Pipiroa-Waitakaruru Road.

## WORKS PERFORMED DURING YEAR.

The following works have been executed under piecework conditions: Double drain and road-bank, 2 miles 18 chains; double drain and road formation, 1 mile 56 chains; widening road-drains and spreading spoil, 11 miles 48 chains; new drain and road formation, 25 chains; clearing scrub and stumping roads, 2 miles 23 chains; converting road-banks into roads, 1 mile 14 chains; cleaning road-drains, 34 miles 48 chains; new outlet drains, 4 miles 61 chains; deepening outlet drains, 8 miles 18 chains; cleaning outlet drain, 9 miles 60 chains; new subdivisional drains, 56 chains; deepening subdivisional drains, 4 miles 56 chains; cleaning subdivisional drains, 3 miles 16 chains; new stop-bank drains, 1 mile 33 chains; deepening stop-bank drains, 51 chains; cleaning stop-bank drains, 22 chains; stripping peat, Waitakaruru Canal, 75 chains; snagging Piako River (upper reaches), 1 mile; removing heavy timber from drains, 3 miles 75 chains; fencing, 36 chains: distance covered, 93 miles 61 chains.

The following works have been executed by day labour: Blinding peat roads with sand (10,000 yards, approximate), 4 miles 29 chains; road formation, 3 miles 73 chains; new road-drains, 1 mile 17 chains; deepening road-drains, 4 miles 20 chains; cleaning road-drains, 23 miles 41 chains; clearing road-lines of scrub, and stumping, 3 miles 44 chains; new outlet drains, 1 mile 20 chains; deepening outlet drains, 66 chains; cleaning outlet drains, 3 miles 64 chains; strengthening stop-banks, 7 miles 11 chains; cleaning stop-bank drains, 4 miles 55 chains; new stop-bank drains, 1 mile 1 chain; timbering road-drain, 20 chains; discing and rolling roads, 13 miles; snagging Waitoa River, 6 miles 45 chains: distance covered, 79 miles 26 chains. Construction of—wharves, 3; flood-gates, 5; bridges, 19; flumings to gates, 12; sheds, 4. Artesian bores sunk, 28. Posts, 700. Poles, 300. Fascines, 1,500. Spoil removed by dredgers, 140,262 cubic yards.

Many other services of a maintenance nature have been done by day labour. A daily average of about 175 men have been employed on piecework contracts and day labour throughout the year. Day labour has again proved quite satisfactory.

Settlers on Hauraki Plains always have a preference both as regards piecework and day labour, and have done a lot of work during this past year.

## CATTLE.

At the beginning of the financial year there were some sixty-nine head of Government stock on the ground standing a cost to the account of £88 9s. 6d., after allowing for the sales of last year. Of this number there has now been sold by auction, &c., some forty-five head, giving a net return of £193 9s. 3d. The balance of stock are still on the ground, but some of the number will be written off on account of deaths, &c., after mustering. When it is considered that the stock were depasturing only on rough drained country the result may be considered satisfactory.

## GRASS-SEED FOR SETTLERS.

As mentioned in last annual report, the matter of assisting the settlers to procure grass-seed to replace losses on account of ravages of crickets was to receive attention. Some fourteen settlers obtained seed-supplies at a cost of £276 7s. 5d., which amount was paid to sundry merchants by the Department, who in turn received promissory notes for the various amounts from the several settlers, and these debts are being met as they become due or are repaid upon any transfer of sections taking place.

## FLAX AREAS.

The only flax area dealt with is situated at Waikaka, a sum of £58 3s. being realized on account of royalty for green flax. If flax keeps up in value there will be a fair quantity of green flax to dispose of in the locality of Waitakaruru.

## METALLING OF ROADS.

During last financial year a special grant of £3,500 was obtained for this purpose, and tenders were twice called for various lengths of road. However, only one contract was let for supply and spreading of metal on Turua Road, at a cost of £1,002 7s. 6d., and this is well under way. All other tenders were exorbitant, and it was decided to obtain quotes for supply only. One contract was thus let for the supply of 2,500 cubic yards of gravel at a total cost of £1,062 10s. delivered at Pipiroa Wharf. This metal is being spread by the Department's own day labour, a light tram-line and trucks being used. The cost will very closely approximate our original estimate. Owing to the lateness of the season, it was decided not to put in hand any further work at present, but to do so in the spring.

It will be necessary to obtain some further steel rails and trucks for the coming season, as it is very apparent that metalling can be done much cheaper by the Department than by contract. In addition to the various roads earmarked for metalling last year, it is suggested that some metalling should be done on the various roads leading from the Piako River both east and west, and also that a further length of Pipiroa-Waitakaruru and Kopuarahi-Turua Roads should be metalled, these latter being important through roads.

## SURVEYS.

During the year some 2,556 acres was surveyed into sections at Waikaka and Kerepeehi, for settlement and other purposes. Some of this was, however, recast, as the progress of drainage made it possible to cut the sections smaller.

Surveys of some Native lands had also to be undertaken on account of boundaries affecting us. The survey of further areas is now in hand.

## VALUATIONS.

Up to date actual valuations have been made of some 30,347 acres that has been subdivided into rural farms, town and suburban sections, and sundry reserves, amounting in the aggregate to £160,010. No valuations of the areas it is intended to bring out during the coming year have as yet been made, but should approximate £17,000, judging from the position disclosed by present state of drainage locally.

## WORKS EXPENDITURE DURING YEAR.

Piecework contracts absorbed the sums of £7,121 0s. 7d. from the Hauraki Plains Settlement Account and £462 5s. from special grants. Day labour absorbed a sum of £7,955 from the Hauraki Plains Settlement Account and £2,453 from special grants. All the above were paid from local imprest.

## PRINCIPAL WORKS PROPOSED.

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

- (1.) Improvements to Piako River.
- (2.) Continuance of cart-road formation.
- (3.) General drainage development of new areas for settlement and opening for selection of same.
- (4.) Prosecution of metalling of roads.
- (5.) Maintenance and improvements of general works.
- (6.) Survey of new areas.

## LAND FOR TOWNSHIP AND VILLAGE SITES.

Arrangements have been made to purchase an area of 175 acres at Kerepeehi, and 25 acres at Waikaka, for above purposes, and in due course the land will be suitably subdivided.

## LAND PROPOSED TO BE OPENED.

It is anticipated that some 2,000 acres of land at Waikaka will be available for selection towards the end of July, and that some months later a further 2,000 acres in the neighbourhood of Torehape and Waitakaruru will be sufficiently developed to permit of opening. The above land is all of good quality.

It may be mentioned that during the current year an area of probably 6,000 acres of Crown lands, consisting of swamp and hill country adjoining the Hauraki Plains and in the locality of Waitakaruru, will be ready for selection. This block will have the advantage of being roaded, this work now being in progress.

## OFFICE.

Both office and drafting staffs have been kept very busy during the year, and a very considerable number of engineering surveys have also been done.

## GENERAL.

The attached plan shows the position of operations as at end of financial year, and it will be noticed that a large scope of country is being dealt with. No effort is being spared to bring as much swamp land as possible into profitable use, and thus give effect to the Government's policy.

My thanks are due to the Assistant Land Drainage Engineer, Mr. R. G. Macmorran, and all other members of the local staff, who have worked hard to ensure the success of all operations of office and field.

I have, &c.,

J. B. THOMPSON,

The Under-Secretary, Department of Lands and Survey.

Land Drainage Engineer.

## ARTESIAN BORE NO. 32 : SECTION 2, BLOCK XI, THAMES. (MR. FLYNN.)

Depth in Ft.	Details.	Depth in Ft.	Details.
79	79 ft. clay.	254	20 ft. pumice sand.
81	2 ft. sand.	258	4 ft. shingle.
94	13 ft. clay.	284	26 ft. pumice sand.
109	15 ft. sandy clay.	286	2 ft. rotten timber.
112	3 ft. pumice.	290	4 ft. sandy clay.
116	4 ft. rotten wood.	292	2 ft. rotten timber.
122	6 ft. pumice.	295	3 ft. clay.
125	3 ft. rotten timber.	299	4 ft. pumice sand.
130	5 ft. pumice sand.	300	1 ft. rotten timber.
140	10 ft. sandy clay.	320	20 ft. pumice sand.
143	3 ft. hard sand.	336	16 ft. hard sand.
151	8 ft. sandy clay.	342	6 ft. sandy clay.
155	4 ft. white clay.	345	3 ft. pumice sand.
158	3 ft. clay.	347	2 ft. clay.
164	6 ft. rotten timber.	354	7 ft. pumice sand.
168	4 ft. sand.	357	3 ft. clay.
205	37 ft. pumice sand.	375	18 ft. pumice sand.
215	10 ft. drift sand.	381	6 ft. clay.
218	3 ft. rotten timber.	441	60 ft. pumice sand.
228	10 ft. drift sand.	487	46 ft. sandy clay.
234	6 ft. clay.		

Total depth, 487 ft. Flow, 17,280 gallons per twenty-four hours.

## ARTESIAN BORE NO. 33 : SECTION 9, BLOCK XI, THAMES. (MR. W. E. HALE.)

Depth in Ft.	Details.	Depth in Ft.	Details.
125	125 ft. clay.	272	2 ft. rotten timber.
140	15 ft. sandy clay.	292	20 ft. drift sand.
144	4 ft. hard sand.	294	2 ft. shingle.
152	8 ft. sandy clay.	300	6 ft. drift sand.
156	4 ft. white clay.	305	5 ft. clay.
158	2 ft. hard stone.	310	5 ft. pumice sand.
169	11 ft. clay.	314	4 ft. rotten wood.
171	2 ft. rotten timber.	319	5 ft. sandy clay.
176	5 ft. pumice sand.	322	3 ft. rotten wood.
186	10 ft. rotten timber.	357	35 ft. hard stone.
207	26 ft. pumice sand.	369	12 ft. sandy clay.
209	2 ft. rotten timber.	370	1 ft. rotten wood.
229	20 ft. pumice sand.	389	19 ft. pumice sand.
237	8 ft. drift sand.	390	11 ft. rotten wood.
242	5 ft. rotten timber.	393	3 ft. pumice sand.
255	13 ft. pumice sand.	410	17 ft. sandy clay.
259	4 ft. clay.	466	56 ft. hard sand.
270	11 ft. pumice sand.		

Total depth, 466 ft. Flow, nil.

## ARTESIAN BORE NO. 34 : SECTION 11, BLOCK XI, THAMES. (MR. CLEVELY.)

Depth in Ft.	Details.	Depth in Ft.	Details.
95	95 ft. clay.	232	4 ft. rotten timber.
103	8 ft. sand.	236	4 ft. pumice sand.
100	7 ft. clay.	237	1 ft. rotten timber.
121	11 ft. sandstone.	240	4 ft. pumice sand.
132	11 ft. clay.	254	13 ft. white clay.
140	8 ft. hard sand.	262	8 ft. pumice sand.
163	23 ft. pumice sand.	266	4 ft. clay.
169	6 ft. rotten timber.	276	10 ft. pumice sand.
178	9 ft. drift sand.	278	2 ft. shingle.
196	18 ft. pumice sand.	280	2 ft. clay.
197	1 ft. rotten timber.	332	52 ft. pumice sand.
210	13 ft. pumice sand.	337	5 ft. rotten timber.
213	3 ft. rotten timber.	405	68 ft. pumice sand.
216	3 ft. white clay.	409	4 ft. rotten timber.
228	12 ft. pumice sand.	440	31 ft. clay.

Total depth, 440 ft. Flow, 17,260 gallons per day.

## ARTESIAN BORE NO. 35 : SECTION 4, BLOCK XI, THAMES. (MR. C. A. RAU.)

Depth in Ft.	Details.	Depth in Ft.	Details.
48	48 ft. clay.	247	3 ft. rotten timber.
63	15 ft. rotten timber.	285	38 ft. pumice sand.
79	16 ft. clay.	299	14 ft. rotten timber.
99	20 ft. pumice sand.	307	8 ft. clay.
119	10 ft. rotten timber.	319	12 ft. pumice sand.
123	4 ft. pumice sand.	321	2 ft. rotten timber.
147	24 ft. clay.	408	87 ft. pumice sand.
149	2 ft. rotten timber.	418	10 ft. rotten timber.
159	10 ft. sandy clay.	436	28 ft. pumice sand.
164	5 ft. rotten timber.	441	5 ft. rotten timber.
168	4 ft. sandy clay.	449	8 ft. pumice sand.
185	17 ft. hard sand.	464	15 ft. white clay.
204	19 ft. sandy clay.	470	6 ft. pumice sand.
207	3 ft. pumice sand.	478	8 ft. clay.
214	7 ft. white clay.	488	10 ft. sandstone.
234	20 ft. rotten timber.	496	8 ft. rotten timber.
244	10 ft. pumice sand.	556	60 ft. sandy clay.

Total depth, 556 ft. Flow, 34,560 gallons per day.

## ARTESIAN BORE NO. 36 : SECTIONS 5 AND 6, BLOCK XI, THAMES. (MESSRS. H. GRUNDY AND F. J. CHRISTIE.)

Depth in Ft.	Details.	Depth in Ft.	Details.
43	43 ft. clay.	270	16 ft. hard sand.
53	10 ft. rotten timber.	278	8 ft. rotten timber.
82	29 ft. clay.	310	32 ft. sandy clay.
97	15 ft. rotten timber.	319	9 ft. rotten timber.
107	10 ft. clay.	326	7 ft. pumice sand.
128	21 ft. sandy clay.	330	4 ft. rotten timber.
140	12 ft. rotten timber.	360	30 ft. pumice sand.
156	16 ft. hard sand.	371	11 ft. rotten timber.
192	36 ft. sandy clay.	379	8 ft. clay.
197	5 ft. hard sand.	392	13 ft. sandstone
227	30 ft. shingle.	393	1 ft. shingle.
235	8 ft. rotten timber.	433	40 ft. pumice sand.
242	7 ft. pumice sand.	436	3 ft. clay.
246	4 ft. rotten timber.	440	4 ft. rotten timber.
252	6 ft. pumice sand.	452	12 ft. pumice sand.
254	2 ft. rotten timber.		

Total depth, 452 ft. Flow, 4,800 gallons per hour.

## ARTESIAN BORE NO. 37 : SECTIONS 7 AND 8, BLOCK XI, THAMES. (MESSRS. PEAT AND WILSON.)

Depth in Ft.	Details.	Depth in Ft.	Details.
49	49 ft. clay.	260	18 ft. pumice sand.
70	21 ft. rotten timber.	264	4 ft. rotten timber.
95	25 ft. clay.	272	8 ft. pumice sand.
115	20 ft. pumice sand.	274	2 ft. rotten timber.
160	45 ft. drift sand.	319	45 ft. pumice sand.
172	12 ft. shingle.	324	5 ft. rotten timber.
175	3 ft. rotten timber.	370	46 ft. pumice sand.
182	7 ft. pumice sand.	372	2 ft. clay.
184	2 ft. rotten timber.	374	2 ft. pumice sand.
197	13 ft. pumice sand.	380	6 ft. rotten timber.
199	2 ft. rotten timber.	389	9 ft. pumice sand.
214	15 ft. clay.	394	5 ft. rotten timber.
216	2 ft. rotten timber.	438	44 ft. pumice sand.
227	11 ft. pumice sand.	466	28 ft. drift sand.
242	15 ft. clay.		

Total depth, 466 ft. Flow, 11,520 gallons per twenty-four hours.

## ARTESIAN BORE NO. 38 : SECTION 37, BLOCK X, THAMES. (MR. SCHWARZ.)

Depth in Ft.	Details.	Depth in Ft.	Details.
48	48 ft. clay.	166	2 ft. rotten timber.
70	22 ft. pumice sand.	179	13 ft. pumice sand.
73	3 ft. rotten timber.	184	5 ft. rotten timber.
87	14 ft. pumice sand.	214	30 ft. pumice sand.
89	2 ft. rotten timber.	217	3 ft. rotten timber.
117	28 ft. pumice sand.	227	10 ft. pumice sand.
121	4 ft. clay.	245	18 ft. white clay.
149	28 ft. drift sand.	253	8 ft. sand.
156	7 ft. shingle.	258	5 ft. rotten timber.
164	8 ft. pumice sand.	273	15 ft. pumice sand.

Total depth, 273 ft. Flow, 160 gallons per hour.

## ARTESIAN BORE NO. 39 : SECTION 32, BLOCK X, THAMES. (MR. W. J. ABBOTT.)

Depth in Ft.	Details.	Depth in Ft.	Details.
53	53 ft. clay.	225	4 ft. rotten timber.
80	27 ft. hard sand.	237	12 ft. pumice sand.
93	13 ft. rotten timber.	239	2 ft. rotten timber.
101	8 ft. sand.	253	14 ft. pumice sand.
104	3 ft. clay.	261	8 ft. rotten timber.
128	24 ft. drift sand.	280	19 ft. pumice sand.
131	3 ft. rotten timber.	282	2 ft. clay.
134	3 ft. sand.	286	4 ft. pumice sand.
137	3 ft. rotten timber.	289	3 ft. rotten timber.
142	5 ft. pumice sand.	297	8 ft. pumice sand.
145	3 ft. rotten timber.	301	4 ft. rotten timber.
152	7 ft. clay.	342	41 ft. pumice sand.
156	4 ft. rotten timber.	345	3 ft. rotten timber.
164	8 ft. sandy clay.	356	11 ft. pumice sand.
166	2 ft. rotten timber.	358	2 ft. rotten timber.
174	8 ft. pumice sand.	364	6 ft. pumice sand.
177	3 ft. rotten timber.	365	1 ft. rotten timber.
221	44 ft. pumice sand.		

Total depth, 365 ft. Flow, 180 gallons per hour.

## ARTESIAN BORE NO. 40 : SECTION 33, BLOCK X, THAMES. (MR. T. PRENDERGAST.)

Depth in Ft.	Details.	Depth in Ft.	Details.
54	54 ft. clay.	229	3 ft. rotten timber.
58	4 ft. rotten timber.	237	8 ft. pumice sand.
64	6 ft. hard stone.	239	2 ft. rotten timber.
66	2 ft. clay.	254	15 ft. pumice sand.
87	21 ft. black sand.	255	1 ft. rotten timber.
94	7 ft. rotten timber.	267	12 ft. pumice sand.
117	23 ft. pumice sand.	272	5 ft. rotten timber.
119	2 ft. shingle.	311	39 ft. pumice sand.
132	13 ft. pumice sand.	318	7 ft. sandy clay.
136	4 ft. rotten timber.	323	5 ft. pumice sand.
158	22 ft. pumice sand.	326	3 ft. rotten timber.
167	9 ft. clay.	338	12 ft. pumice sand.
169	2 ft. rotten timber.	340	2 ft. white clay.
181	12 ft. clay.	356	16 ft. pumice sand.
188	7 ft. pumice sand.	359	3 ft. clay.
189	1 ft. rotten timber.	362	3 ft. pumice sand.
201	12 ft. pumice sand.	370	8 ft. rotten timber.
203	2 ft. shingle.	425	55 ft. sandy clay.
226	23 ft. pumice sand.		

Total depth, 425 ft. Flow, 160 gallons per hour.

## ARTESIAN BORE NO. 41 : SECTION 36, BLOCK X, THAMES. (MR. CLEAVER.)

Depth in Ft.	Details.	Depth in Ft.	Details.
49	49 ft. clay.	148	10 ft. shingle.
59	10 ft. drift sand.	176	28 ft. pumice sand.
69	10 ft. pumice sand.	178	2 ft. rotten timber.
98	29 ft. drift sand.	182	4 ft. pumice sand.
108	10 ft. shingle.	189	7 ft. white clay.
138	30 ft. pumice sand.	234	45 ft. pumice sand.

Total depth, 234 ft. Flow, 160 gallons per hour.

## ARTESIAN BORE NO. 42 : POUND RESERVE AT PIPIROA TOWNSHIP.

Depth in Ft.	Details.	Depth in Ft.	Details.
64	64 ft. clay.	181	4 ft. clay.
97	33 ft. drift sand.	216	35 ft. pumice sand.
102	5 ft. shingle.	235	19 ft. shingle.
107	5 ft. rotten timber.	238	3 ft. rotten timber.
123	16 ft. pumice sand.	261	23 ft. white clay.
128	5 ft. rotten timber.	283	22 ft. blue clay.
148	20 ft. pumice sand.	287	4 ft. rock.
151	3 ft. rotten timber.	290	3 ft. sand.
177	26 ft. pumice sand.	335	45 ft. white clay.

Total depth, 335 ft. Flow, 3,840 gallons per day.

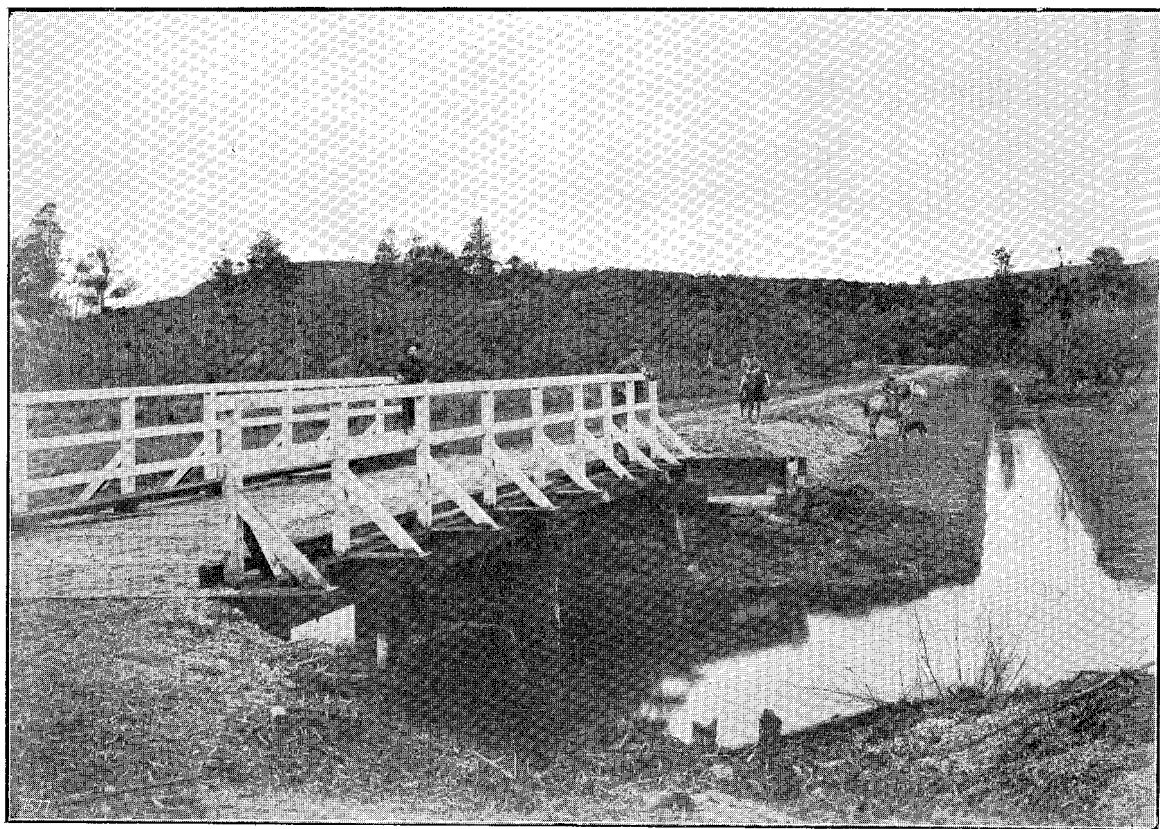




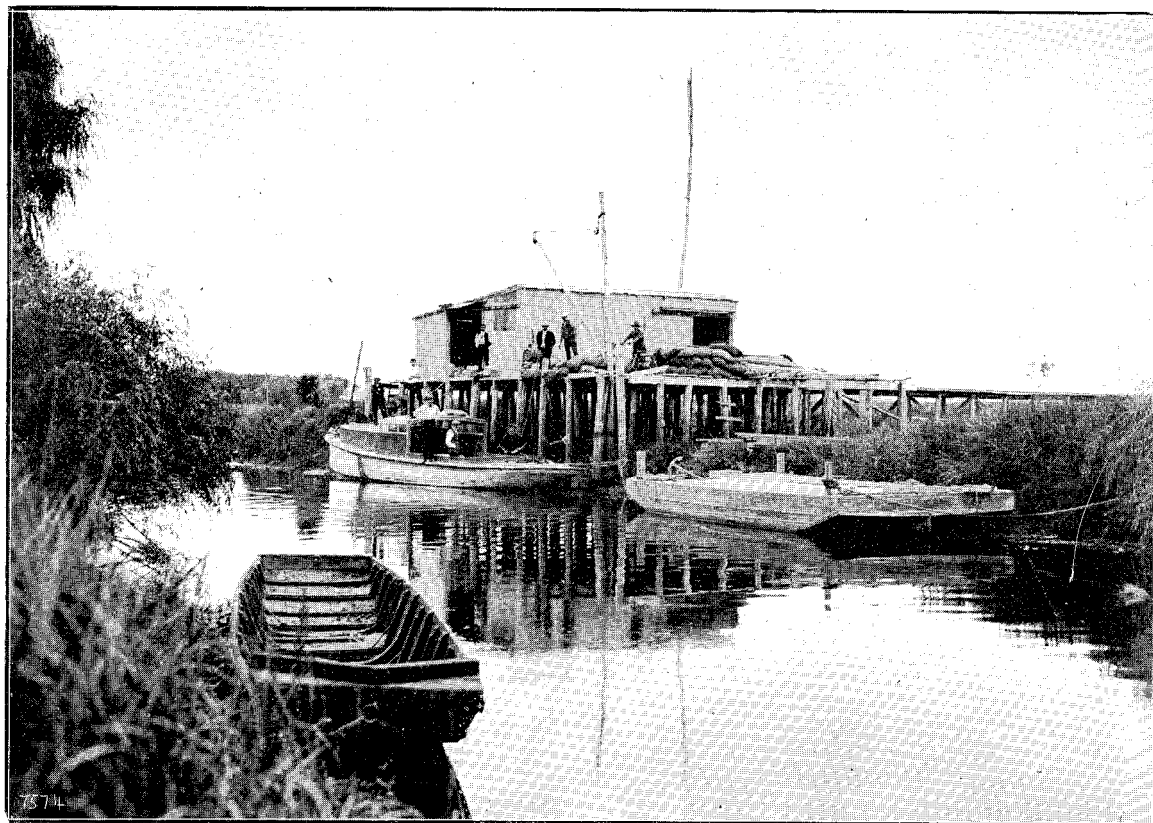
MAHUTA ROAD THROUGH CROWN BLOCK, ON WESTERN SIDE OF Hauraki PLAINS.



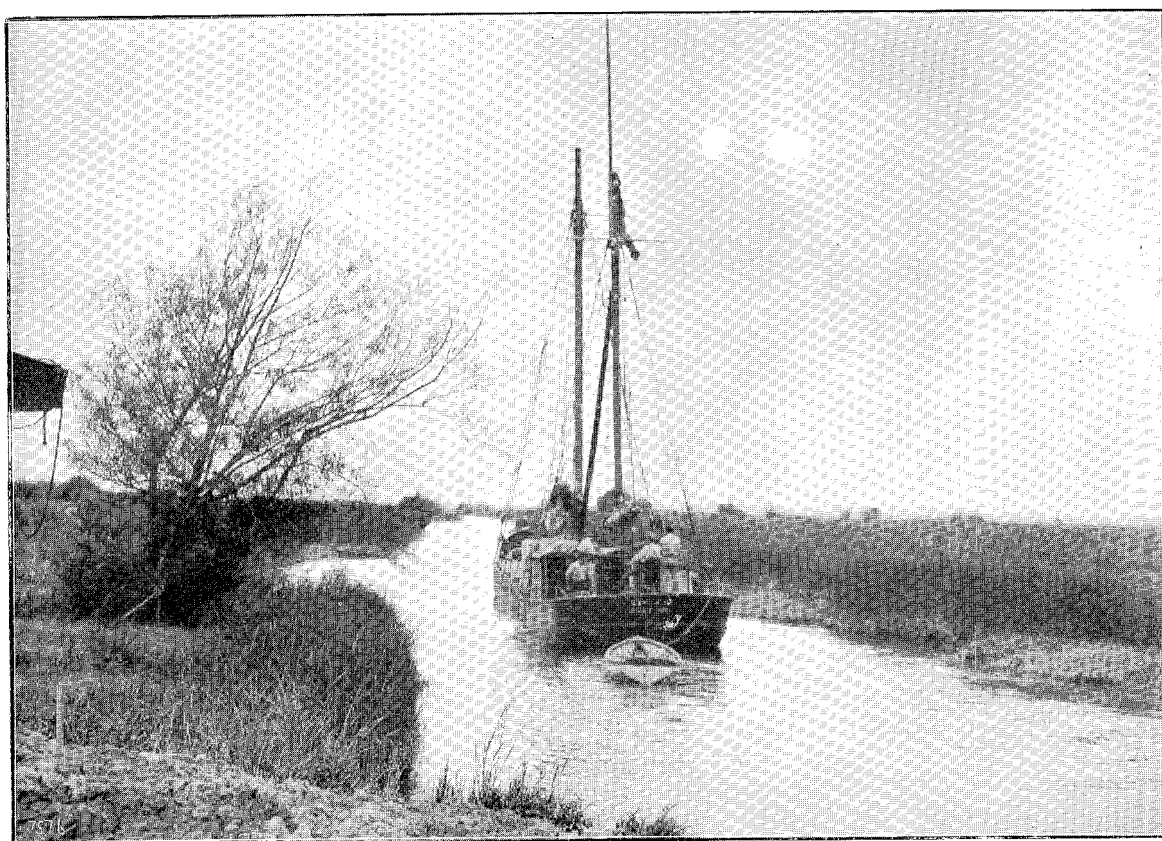
MAHUTA ROAD UNDER CONSTRUCTION, FROM EDGE OF SWAMP TO FOOTHILLS.



WATAKARURU STREAM BRIDGE AND COMMENCEMENT OF MAHUTA ROAD INTO CROWN BLOCK.



WHARF AT WAIKAKA, PIako RIVER.



NORTHERN STEAMSHIP COMPANY'S "VICTORY" ON PIKO RIVER *en route* TO AUCKLAND.



OATS GROWING ON VIRGIN LAND AT WAIKAKA.



## ARTESIAN BORE NO. 43 : SECTIONS 8 AND 10, BLOCK X, THAMES. (MESSRS. KNAPP AND KEANE.)

Depth in Ft.	Details.	Depth in Ft.	Details.
104	104 ft. clay.	204	24 ft. shingle.
111	7 ft. sand.	210	6 ft. drift sand.
121	10 ft. clay.	215	5 ft. clay.
124	3 ft. sand.	219	4 ft. rotten timber.
134	10 ft. white clay.	246	27 ft. blue clay.
139	5 ft. drift sand.	266	20 ft. white clay.
146	7 ft. white clay.	271	5 ft. rotten timber.
155	9 ft. pumice sand.	331	60 ft. sandy clay.
180	25 ft. drift sand.		

Total depth, 331 ft. Flow, 5,760 gallons per day.

## ARTESIAN BORE NO. 44 : SECTION 1, BLOCK X, WHAREKAWA. (MESSRS. HARRIS BROS.)

Depth in Ft.	Details.	Depth in Ft.	Details.
64	64 ft. clay.	113	4 ft. sand.
79	15 ft. pumice sand.	115	2 ft. rotten timber.
89	10 ft. clay.	127	12 ft. sandy clay.
101	12 ft. pumice sand.	129	2 ft. rotten timber.
109	8 ft. rotten timber.	151	22 ft. pumice sand.

Total depth, 151 ft. Flow, nil.

## ARTESIAN BORE NO. 45 : SECTION 26, BLOCK X, THAMES. (MR. F. H. BROCKLEHURST.)

Depth in Ft.	Details.	Depth in Ft.	Details.
67	67 ft. clay.	182	2 ft. drift sand.
83	16 ft. pumice sand.	184	2 ft. clay.
88	5 ft. clay.	187	3 ft. drift sand.
100	12 ft. pumice sand.	200	13 ft. rotten timber.
103	3 ft. clay.	208	8 ft. pumice sand.
111	8 ft. pumice sand.	215	7 ft. rotten timber.
121	10 ft. clay.	235	20 ft. pumice sand.
128	7 ft. drift sand.	239	4 ft. rotten timber.
139	11 ft. white clay.	255	16 ft. pumice sand.
147	8 ft. pumice sand.	260	5 ft. drift sand.
180	33 ft. blue clay.		

Total depth, 260 ft. Flow, 17,280 gallons per day.

## ARTESIAN BORE NO. 46 : SECTION 24, BLOCK X, THAMES. (MR. C. WAITE.)

Depth in Ft.	Details.	Depth in Ft.	Details.
64	64 ft. clay.	258	9 ft. rotten timber.
156	92 ft. pumice sand.	263	5 ft. sand.
181	25 ft. white clay.	268	5 ft. rotten timber.
186	5 ft. sand.	280	12 ft. sandstone.
194	8 ft. clay.	285	5 ft. clay.
198	4 ft. sand.	289	4 ft. sand.
206	8 ft. rotten timber.	317	28 ft. blue clay.
210	4 ft. clay.	320	3 ft. pumice sand.
214	4 ft. rotten timber.	328	8 ft. clay.
220	6 ft. sand.	335	7 ft. pumice sand.
222	2 ft. rotten timber.	341	6 ft. clay.
225	3 ft. sand.	346	5 ft. pumice sand.
227	2 ft. rotten timber.	348	2 ft. rock.
249	22 ft. drift sand.	352	4 ft. clay.

Total depth, 352 ft. Flow, 5,760 gallons per day.

## ARTESIAN BORE NO. 47 : SECTION 23, BLOCK X, THAMES. (MESSRS. SIMPSON BROS.)

Depth in Ft.	Details.	Depth in Ft.	Details.
70	70 ft. clay.	200	25 ft. blue clay.
102	32 ft. drift sand.	218	18 ft. rotten timber.
105	3 ft. clay.	222	4 ft. pumice sand.
108	3 ft. pumice sand.	224	2 ft. rotten timber.
109	1 ft. clay.	285	61 ft. drift sand.
124	15 ft. drift sand.	287	2 ft. rotten timber.
129	5 ft. rotten timber.	296	9 ft. pumice sand.
137	8 ft. clay.	300	4 ft. shingle.
140	3 ft. pumice sand.	341	41 ft. clay.
170	30 ft. white clay.	363	22 ft. black sand.
175	5 ft. sand.		

Total depth, 363 ft. Flow, 7,200 gallons per day.



## ARTESIAN BORE NO. 48: SECTION 21, BLOCK X, THAMES. (MR. S. S. MURRAY.)

Depth in Ft.	Details.	Depth in Ft.	Details.
73	73 ft. clay.	158	18 ft. drift sand.
75	2 ft. rotten timber.	166	8 ft. shingle.
102	27 ft. pumice sand.	254	88 ft. clay.
106	4 ft. clay.	257	3 ft. sand.
118	12 ft. pumice sand.	260	3 ft. rotten timber.
122	4 ft. clay.	261	1 ft. sand.
130	8 ft. pumice sand.	265	4 ft. clay.
138	8 ft. clay.	265	2 ft. rotten timber.
140	2 ft. shingle.	276	9 ft. pumice sand.

Total depth, 276 ft. Flow, 11,520 gallons per day.

## ARTESIAN BORE NO. 49: SECTIONS 8 AND 9, BLOCK I, WAIHOU. (MESSRS. VOWELL AND PRICE.)

Depth in Ft.	Details.	Depth in Ft.	Details.
68	68 ft. clay.	123	8 ft. black sand.
70	2 ft. rotten timber.	128	5 ft. rotten timber.
83	13 ft. pumice sand.	130	2 ft. pumice sand.
85	2 ft. rotten timber.	133	3 ft. clay.
91	6 ft. clay.	139	6 ft. pumice sand.
100	9 ft. pumice sand.	141	2 ft. clay.
102	2 ft. clay.	154	13 ft. drift sand.
104	2 ft. pumice sand.	215	61 ft. clay.
108	4 ft. clay.	219	4 ft. sand.
113	5 ft. pumice sand.	222	3 ft. rotten timber.
115	2 ft. clay.	230	8 ft. drift sand.

Total depth, 230 ft. Flow, 4,800 gallons per day.

## ARTESIAN BORE NO. 50: SECTION 3, BLOCK II, WAIHOU. (MR. W. E. G. WILLY.)

Depth in Ft.	Details.	Depth in Ft.	Details.
42	42 ft. clay.	178	6 ft. pumice sand.
48	6 ft. rotten timber.	180	2 ft. rotten timber.
73	25 ft. clay.	197	17 ft. pumice sand.
88	15 ft. pumice sand.	201	4 ft. rotten timber.
101	13 ft. clay.	208	6 ft. pumice sand.
105	4 ft. sand.	210	2 ft. rotten timber.
108	3 ft. clay.	222	12 ft. pumice sand.
110	2 ft. sand.	225	3 ft. rotten timber.
119	9 ft. white clay.	250	25 ft. pumice sand.
122	3 ft. rotten timber.	252	2 ft. rotten timber.
125	3 ft. sand.	255	3 ft. pumice sand.
128	3 ft. clay.	261	6 ft. clay.
133	5 ft. rotten timber.	265	4 ft. pumice sand.
136	3 ft. clay.	268	3 ft. rotten timber.
161	25 ft. pumice sand.	274	6 ft. pumice sand.
172	11 ft. rotten timber.		

Total depth, 274 ft. Flow, 3,840 gallons per day.

## ARTESIAN BORE NO. 51: SECTION 17, BLOCK XI, THAMES. (MR. J. W. TREADAWAY.)

Depth in Ft.	Details.	Depth in Ft.	Details.
58	58 ft. clay.	114	9 ft. clay.
68	10 ft. pumice sand.	127	13 ft. rotten timber.
74	3 ft. rotten timber.	135	8 ft. pumice sand.
76	2 ft. pumice sand.	136	1 ft. rotten timber.
82	6 ft. clay.	166	30 ft. pumice sand.
90	8 ft. pumice sand.	171	5 ft. rotten timber.
97	7 ft. clay.	183	12 ft. clay.
103	6 ft. pumice sand.	216	33 ft. pumice sand.
105	2 ft. rotten timber.		

Total depth, 216 ft. Flow, 2,880 gallons per day.

## ARTESIAN BORE NO. 52: SECTION 15, BLOCK XI, THAMES. (MR. S. S. MURRAY.)

Depth in Ft.	Details.	Depth in Ft.	Details.
43	43 ft. clay.	133	2 ft. pumice sand.
51	8 ft. rotten timber.	137	4 ft. white clay.
70	19 ft. clay.	155	18 ft. drift sand.
76	6 ft. sand.	159	4 ft. shingle.
86	10 ft. rotten timber.	161	2 ft. clay.
103	17 ft. pumice sand.	176	15 ft. drift sand.
131	28 ft. clay.	179	3 ft. clay.

## ARTESIAN BORE NO. 52: SECTION 15, BLOCK XI, THAMES—continued.

Depth in Ft.	Details.	Depth in Ft.	Details.
185	6 ft. drift sand.	244	4 ft. clay.
193	8 ft. shingle.	252	8 ft. hard sand.
210	17 ft. drift sand.	255	3 ft. rotten timber.
220	10 ft. shingle.	267	12 ft. clay.
231	11 ft. drift sand.	270	3 ft. pumice sand.
240	9 ft. rotten timber.	276	6 ft. rotten timber.

Total depth, 276 ft. Flow, 14,400 gallons per day.

## ARTESIAN BORE NO. 53: SECTION 14, BLOCK XI, THAMES. (MR. O. A. FRENCH.)

Depth in Ft.	Details.	Depth in Ft.	Details.
42	42 ft. clay.	169	29 ft. clay.
75	33 ft. rotten timber.	173	4 ft. sand.
101	26 ft. clay.	183	10 ft. clay.
104	3 ft. rotten timber.	189	6 ft. sand.
124	20 ft. clay.	199	10 ft. clay.
127	3 ft. sand.	202	3 ft. sand.
131	4 ft. clay.	220	18 ft. white clay.
133	2 ft. rotten timber.	245	25 ft. black sand.
140	7 ft. pumice sand.		

Total depth, 245 ft. Flow, 3,360 gallons per day.

## ARTESIAN BORE NO. 54: SECTION 19, BLOCK XI, THAMES. (MR. J. D. CRAWFORD.)

Depth in Ft.	Details.	Depth in Ft.	Details.
69	69 ft. clay.	246	2 ft. clay.
71	2 ft. rotten timber.	252	6 ft. drift sand.
75	4 ft. pumice sand.	254	2 ft. rotten timber.
87	12 ft. clay.	264	10 ft. drift sand.
90	3 ft. sand.	266	2 ft. clay.
103	13 ft. clay.	354	88 ft. pumice sand.
129	26 ft. pumice sand.	357	3 ft. clay.
173	44 ft. rotten timber.	361	4 ft. pumice sand.
189	16 ft. sand.	362	1 ft. clay.
192	3 ft. rotten timber.	372	10 ft. pumice sand.
196	4 ft. sand.	376	4 ft. clay.
201	5 ft. clay.	379	3 ft. pumice sand.
206	5 ft. sand.	381	2 ft. rotten timber.
209	3 ft. rotten timber.	402	21 ft. pumice sand.
213	4 ft. sand.	413	11 ft. clay.
216	3 ft. clay.	419	6 ft. rotten timber.
220	4 ft. rotten timber.	424	5 ft. clay.
244	24 ft. drift sand.		

Total depth, 424 ft. Flow, 11,600 gallons per day.

## ARTESIAN BORE NO. 55: SECTION 18, BLOCK XI, THAMES. (MR. A. H. ROGERS.)

Depth in Ft.	Details.	Depth in Ft.	Details.
83	83 ft. clay.	166	7 ft. sand.
88	5 ft. sand.	174	8 ft. white clay.
90	2 ft. rotten timber.	184	10 ft. pumice sand.
101	11 ft. sand.	198	14 ft. rotten timber.
129	28 ft. clay.	203	5 ft. sand.
135	6 ft. pumice sand.	210	7 ft. rotten timber.
148	13 ft. rotten timber.	224	14 ft. pumice sand.
152	4 ft. clay.	227	3 ft. rotten timber.
153	1 ft. rotten timber.	247	20 ft. pumice sand.
159	6 ft. clay.		

Total depth, 247 ft. Flow, 2,640 gallons per day.

## ARTESIAN BORE NO. 56: SECTION 7, BLOCK II, WAIHOU. (MR. W. UNSWORTH.)

Depth in Ft.	Details.	Depth in Ft.	Details.
43	43 ft. clay.	164	21 ft. pumice sand.
58	15 ft. rotten timber.	166	2 ft. clay.
61	3 ft. clay.	168	2 ft. sand.
64	3 ft. rotten timber.	173	5 ft. clay.
88	24 ft. clay.	239	66 ft. pumice sand.
91	3 ft. sand.	241	2 ft. rotten timber.
98	7 ft. rotten timber.	248	7 ft. clay.
108	10 ft. pumice sand.	258	10 ft. pumice sand.
132	24 ft. clay.	260	2 ft. rotten timber.
136	4 ft. sand.	290	30 ft. pumice sand.
143	17 ft. clay.	295	5 ft. rotten timber.

Total depth, 295 ft. Flow, 12,000 gallons per day.

## ARTESIAN BORE NO. 57 : SECTION 16, BLOCK XI, THAMES. (MR. WEST.)

Depth in Ft.	Details.	Depth in Ft.	Details.
64	64 ft. clay.	216	3 ft. clay.
70	6 ft. rotten timber.	229	13 ft. pumice sand.
87	17 ft. clay.	232	3 ft. rotten timber.
90	3 ft. sand.	240	8 ft. sand.
94	4 ft. rotten timber.	244	4 ft. rotten timber.
104	10 ft. pumice sand.	274	30 ft. pumice sand.
130	26 ft. clay.	276	2 ft. rotten timber.
137	7 ft. sand.	291	15 ft. pumice sand.
143	6 ft. clay.	299	8 ft. white clay.
169	26 ft. drift sand.	302	3 ft. sand.
177	8 ft. shingle.	306	4 ft. clay.
184	7 ft. drift sand.	329	23 ft. hard sand.
186	2 ft. rotten timber.	332	3 ft. clay.
196	10 ft. pumice sand.	336	4 ft. pumice sand.
198	2 ft. rotten timber.	338	12 ft. rotten timber.
205	7 ft. clay.	367	29 ft. pumice sand.
213	8 ft. pumice sand.		

Total depth, 367 ft. Flow, 4,800 gallons per day.

## ARTESIAN BORE NO. 58 : SECTION 4, BLOCK II, WAIHOU. (MR. FLYNN.)

Depth in Ft.	Details.	Depth in Ft.	Details.
54	54 ft. clay.	216	5 ft. rotten timber.
57	3 ft. pumice sand.	218	2 ft. pumice sand.
71	14 ft. rotten timber.	226	8 ft. clay.
76	5 ft. pumice sand.	230	4 ft. rotten timber.
103	27 ft. clay.	239	9 ft. pumice sand.
105	2 ft. pumice sand.	249	10 ft. clay.
111	6 ft. rotten timber.	252	3 ft. pumice sand.
119	8 ft. clay.	257	5 ft. rotten timber.
149	30 ft. pumice sand.	267	10 ft. pumice sand.
159	10 ft. rotten timber.	269	2 ft. clay.
177	18 ft. pumice sand.	299	30 ft. pumice sand.
180	3 ft. rotten timber.	309	10 ft. clay.
190	10 ft. drift sand.	324	15 ft. pumice sand.
192	2 ft. rotten timber.	328	4 ft. rotten timber.
194	2 ft. pumice sand.	334	6 ft. pumice sand.
199	5 ft. rotten timber.	336	2 ft. clay.
211	12 ft. pumice sand.		

Total depth, 336 ft. Flow, 2,240 gallons per day.

## ARTESIAN BORE NO. 59 : SECTION 5, BLOCK II, WAIHOU. (MR. WEST.)

Depth in Ft.	Details.	Depth in Ft.	Details.
64	64 ft. clay.	239	5 ft. sand.
70	6 ft. rotten timber.	243	4 ft. rotten timber.
75	5 ft. sand.	256	13 ft. pumice sand.
102	27 ft. clay.	258	2 ft. rotten timber.
105	3 ft. sand.	267	9 ft. pumice sand.
115	10 ft. clay.	271	4 ft. rotten timber.
151	36 ft. drift sand.	289	18 ft. pumice sand.
154	3 ft. rotten timber.	293	4 ft. rotten timber.
164	10 ft. pumice sand.	317	24 ft. pumice sand.
166	2 ft. rotten timber.	319	2 ft. clay.
171	5 ft. pumice sand.	327	8 ft. pumice sand.
175	4 ft. rotten timber.	331	4 ft. clay.
184	9 ft. drift sand.	334	3 ft. pumice sand.
188	4 ft. shingle.	335	1 ft. clay.
190	2 ft. rotten timber.	339	4 ft. pumice sand.
196	6 ft. pumice sand.	342	3 ft. rotten timber.
203	7 ft. clay.	345	3 ft. pumice sand.
208	5 ft. rotten timber.	349	4 ft. clay.
218	10 ft. sand.	384	35 ft. pumice sand.
228	10 ft. white clay.	387	3 ft. rotten timber.
232	4 ft. sand.	420	33 ft. pumice sand.
234	2 ft. rotten timber.		

Total depth, 420 ft. Flow, 9,120 gallons per day.

*Approximate Cost of Paper.*—Preparation, not given ; printing (1,300 copies, including plan and illustrations), £35..





<i>Boundaries of Hauraki Plains</i>	-	.	.	.	.
<i>Lands disposed of on optional system</i>	-	.	.	.	.
<i>Lands being surveyed and drained and proposed to be opened for selection during next financial year</i>	-	.	.	.	.
<i>Crown and Land for Settlement Lands under survey to be roaded for settlement purposes</i>	-	.	.	.	.
<i>Drains now in operation</i>	-	.	.	.	.
<i>Drains under construction</i>	-	.	.	.	.
<i>Stop-banks</i>	-	.	.	.	.
<i>Artesian bores</i>	-	.	.	.	.

— — — Scale of chains



*J. B. Thompson.*  
*Land Drainage Engineer.*

