

Figures below are average for the 5 week-days ending on the date shown:—

Date.					Maximum.	Units.
					kw.	
January 27	..	..	..	..	8,700	191,600
February 3	..	..	..	..	9,700	221,550
„ 10	..	..	..	..	10,000	228,250
„ 17	..	..	..	..	10,400	234,200
„ 24	..	..	..	..	10,400	241,100
March 2	..	..	..	..	10,500	237,900
„ 9	..	..	..	..	10,600	243,600

By the middle of March the flow in the river was down to about 6,000 cusecs, or only sufficient to generate a little over 10,000 kw., and the subsequent deficiency in power-supply was due more to lack of water in the river, than to obstruction of the screens. The headrace was emptied six times as follows: Wednesday, 11th January, from 10 p.m. to 3 a.m.; Sunday, 15th January, from 8.30 a.m. to 3.30 p.m.; Sunday, 29th January, from 8.30 a.m. to 3.30 p.m.; Sunday, 5th February, from 8.30 a.m. to 3.30 p.m.; Sunday, 12th February, from 8.30 a.m. to 3.30 p.m.; and Sunday, 4th March, from 8.30 a.m. to 3.30 p.m.

These shut-downs were necessary mainly to improve the spacing of the old screens to prevent the turbines getting blocked, but the opportunity was taken on each occasion to clean them and to scour as much debris as possible out of the race.

A 14 in. discharge-pipe was put in No. 1 turbine pit to discharge material directly from in front of the screens. Soundings in the headrace and observation on the occasion of emptying it show little increase in the amount of silt in it since the end of January.

The river above and below Horahora is being carefully observed to note any changes that may affect operation, and a small rise in tail-water level below Horahora was noticeable at the end of March.

A thorough examination in April and May, 1928, of all turbines showed that there had been little wear on any of them, except on No. 1. There is a tendency for sand and other debris to collect in the corner of the headrace in front of No. 1 turbine, which thus gets more than its share of sand and pumice through it, and the four guide-wheel castings on this machine are all considerably worn. New castings have been ordered to replace these. It is probable that the cracked runner-vanes already mentioned were due to the debris through the turbines.

Transmission-lines.

On the Horahora-Waikino line (mountain section) five new towers were erected during the year replacing some of the original towers which were badly corroded.

Material was obtained to alter the top construction of the standard towers on this line by mounting the top insulator on a wooden block, and the two side insulators on wooden cross-arms instead of steel cross-arms. By so doing it is hoped to make the towers less attractive for birds' nests, and also to improve matters by the added insulation of the wood between the insulator and the tower. The alteration is being tried out first on forty towers.

On the Mystery Creek—Te Awamutu section of line, a fire in the Ohaupo peat swamp burned through one leg of an A pole.

Defective (cracked) insulators on the Horahora—Hamilton—Te Awamutu and Waiorongomai—Waihou sections of line continue to be found in considerable numbers, but no actual breakdown has been traced to them. They are usually found by live-line testing, and replaced as soon as convenient.

Very good service has been given by all lines except the Horahora-Waikino line, and by the alterations referred to above it is hoped to improve this line to the standard of the others.

Several defective poles on the Penrose telephone-line were replaced.

Substations.

Penrose.—The temporary 50/6.6 kv. substation remained in service throughout the year. On completion of the 50 kv. switch-gear structure controlling the Penrose-Takapuna line, the switch and wiring for supplying this line temporarily were removed and replaced by the permanent connections.

Bombay.—The temporary 50/11 kv. substation remained in service throughout the year. The third 11 kv. feeder was connected up in May.

Hamilton No. 1.—Overload and earth-leakage relays with 12-volt D.C. trip circuit were installed on all feeders in June. Breathers were fitted to the existing 500 kv.a. transformers. 100/5 amp. current-transformers were installed, replacing 50/5, on the Hamilton Borough metering.

Waikino.—Overload and earth-leakage relays were installed in September. Additional gear to synchronise the Waihi feeder to the 11 kv. bus was installed. The neutral earthing-reactor broke down in December. Two 300/5 current-transformers were damaged owing to fault at Kerepeehi.

Waihou.—A neutral earthing-reactor was installed in June. Overload and earth-leakage relays were installed in August. A 30/5 current-transformer broke down in July. The incoming feeders were put underground in August. S. and C. fuses were installed to protect the 50 kv. side of the second transformer-bank.