

building-sites and suburban areas. This place will become of considerable importance in the future, as here are grouped some very fine thermal springs, offering great facilities for the erection of baths and other buildings, with a good supply of cold water, easily obtained. The ease with which Tokaanu may be reached from the neighbourhood of Cook Straits must render this place a favourite resort for invalids who suffer from all forms of rheumatism, whilst the fine scenery of Lake Taupo, its fishing, shooting, and boating, will make it attractive to others. It is also a convenient point from which to make excursions to the Tongariro National Park.

The Act provides that the proceeds from the leases go to the Maori owners of the soil, after defraying the expenses connected with survey and administration.

THERMAL SPRINGS.

The establishments at the various hot springs under the direction of the Lands Department have continued much the same as at date of last report. The group of springs, a little distance up the Nuhaka River, in northern Hawke's Bay, which are only just coming into notice, have had some attention paid to them. They are now accessible by a bridle-road, whilst a considerable area of land has been reserved round them to conserve the forest. These springs are used to a certain extent, but in the future, as access to populated centres becomes more easy, they are certain to be used by numbers of people. Arrangements have been made to lease 7 acres near the springs for twenty-one years, as an inducement to erect an accommodation house, and an additional 20 acres has been leased for paddocks. The lessee is to be caretaker of the springs, and is allowed to charge approved fees for the use of the baths he may erect; other baths are free.

The Government has acquired through the Land Purchase Department some valuable hot springs, fumaroles, and solfataras, near Orakei-korako, on the upper Waikato, including the famous Alum Cave. In times to come, and after the opening of the Wai-o-tapu to Wairakei Road, this is likely to be a place of considerable resort for tourists. The purchase includes some "terraces" which are in process of formation.

Another and more valuable purchase has been acquired by the same department near Rotorua—viz., two portions of the Whakarewarewa Block, containing the geysers and a number of valuable hot springs. The part acquired by the Government is in two portions, one on each side of the Native village. In order to protect the geysers from the acts of unscrupulous persons—who were fast diminishing the attractiveness of the place by their lust for "specimens"—a caretaker has been temporarily employed, whose duty it is to protect the place and act as guide. The great geyser, Waikite, has been quiescent for some time; its cessation of action is said to be due to visitors throwing stones into the orifice. It is believed this can be remedied, and Mr. Malfroy is engaged in attempting to do this now. It has become a practice of late years to incite action in some of the geysers by the application of soap, which usually has the effect required, but, no doubt, to the injury of the geysers. Much speculation has been indulged in as to the cause of this phenomenon, and, therefore, the following extract from the "Smithsonian Report" for 1892 will probably be of interest. Mr. Arnold Hague, in treating of similar action in the geysers of the Yellowstone National Park, says:—

"If soap or lye is thrown into most of the small pools, a viscous fluid is formed; and viscosity is, I think, the principal cause in hastening geyser action. Viscosity must tend to the retention of the steam within the basin, and, as in the case of super-heated waters, where the temperature stands at or above the boiling-point, explosive liberation must follow. All alkaline solutions, whether in the laboratory or in nature, exhibit, by reason of this viscosity, a tendency to bump and boil irregularly. Viscosity in these hot springs must also tend to the formation of bubbles and foam when the steam rises to the surface, and this in turn aids to bring about the explosive action, followed by a relief of pressure, and thus to hasten the final and more powerful display. Of course, relief of pressure of the superincumbent waters upon the column of water below the surface basin is essential to all eruptive action. These conditions, it seems to me, are purely physical. Undoubtedly the fatty substances contained in soap aid the alkali in rendering the water viscous. . . . If visitors to the Park could have their way, the beautiful blue springs and basins of geysers would be 'in the suds' constantly throughout the season. Throwing anything into the springs is now prohibited by the Government authorities; it is certainly detrimental to their preservation, and the practice cannot be too strongly condemned by all interested in the National Reservation."

At Rotorua, the well-known Hamurana cold springs have also been acquired, together with a considerable area around them. These springs are a source of attraction to tourists, and their acquisition will do away with the tolls hitherto charged sight-seers by the Maoris.

Further leases in the town and suburbs of Rotorua were disposed of during the year—that is, thirty-eight leases, of an area of 155 acres, and also a few rural allotments in the Thermal Springs Reserve at Hanmer were likewise leased.

With respect to the baths at Rotorua, the sulphur bath at the spot named "Postmaster" has been completed, and is now very much used for rheumatic patients. A ladies' swimming bath is now under construction near the Priest bath, which will supply a long-felt want, and make the accommodation for visitors equal to requirements. A settling tank has been built on the line of water supply, which will materially improve the quality of the water. The question of the drainage of the Town of Rotorua is becoming daily of more importance as the population increases. Proposals towards attaining this end have been submitted, and are now under consideration.

The Hanmer baths in northern Canterbury continue to attract a large number of visitors, both for the sake of the thermal waters, and for recreation. The plantations are now well forward, and have made the place very attractive. The great drawback in the case of invalids is the want of accommodation close to the springs. Were this supplied, no doubt the number of visitors would be largely increased. It is believed that the reason why private enterprise has not undertaken to supply this want is the difficulty of obtaining a license.