1903.

NEW ZEALAND.

DEPARTMENT OF TOURIST AND HEALTH RESORTS.

(SECOND ANNUAL REPORT.)

Presented to both Houses of the General Assembly by Command of His Excellency.

The SUPERINTENDENT OF TOURIST AND HEALTH RESORTS to the Hon. the MINISTER IN CHARGE.

SIR,— Department of Tourist and Health Resorts, Wellington, 1st May, 1903.

I have the honour to submit herewith the second annual report of the Department of Tourist and Health Resorts for the year ended the 31st March, 1903.

I have, &c.,

T. E. DONNE, Superintendent.

The Hon. Sir J. G. Ward, K.C.M.G., Wellington.

THE year under review has proved a very busy one for the Department. In addition to new works and projects undertaken, which are elsewhere referred to in a more or less detailed manner, a very large amount of routine work has been involved in the management of such places as the sanatorium for invalids, the mineral baths, gardens, parks, thermal reserves, public offices, electric lighting, water-supply, tea-tent, boating services, &c., at Rotorua; baths, gardens, &c., at Te Aroha; the accommodation-house at Lake Waikaremoana; the spa, accommodation-house, baths, gardens, &c., at Hanmer; the Hermitage Hotel and outlying rest-houses at Mount Cook; and the hotel at Pukaki. These operations will be more specifically referred to later on.

It is gratifying to observe that each of the direct revenue-producing branches of this Department's work show substantial financial increases over last year's results.

Correspondence relating to New Zealand as a country for settlement, a tourist resort, a land for sport, and place of business has been very large, and has come from such countries as Finland, Sweden, Germany, France, Switzerland, Roumania, Canada, United States of America, South America, Philippine Islands, India, China, Japan, Straits Settlements, Great Britain, Australia, and the South Sea Islands. The number of letters (including departmental memoranda) received and despatched from the Head Office during the year totalled over 18,800. This branch of the work is growing rapidly as the Department becomes more and more known abroad.

During the two years in which the Department has been in existence the volume of traffic to the colony has greatly increased, and the Department may fairly take credit for a proportion of this augmented passenger business, as the result of its advertising policy and its development of the spas and scenic resorts. The fact that the total arrivals in the colony increased from 18,074 in 1900 to 30,293 for the year ending the 31st December, 1902, is a criterion of the rapid growth of the overseas traffic to this country. The departures from the colony during this period increased from 16,243 to 22,301. The excess of arrivals over departures has increased from 1,831 in 1900 to 7,992 in 1902. The combined number of passengers inwards and outwards rose in the same period from 34,317 to 52,594. The figures of 1903 are expected to show a still greater increase. Of course, much of the increase in the passenger trade is due to general causes, but the work of the Department in making known the attractions of the colony and in facilitating travel throughout New Zealand has undoubtedly helped very appreciably to swell the past year's stream of foreign traffic, and when the institution is thoroughly well established the figures should reveal increases on a very much greater scale. One remarkable feature of the increased traffic is the large number of people now found visiting our tourist resorts during the winter months.

Revenue.

The receipts for the year 1902–3 show at all resorts under control of the Department a satisfactory increase. The total receipts for 1901–2 were £5,490 16s. 10d., and for 1902–3 £8,401 1s.—increase, £2,910 4s. 10d.

—	1900–1.	1901–2.	1902–3.	Increase on Previous Year.
Te Aroha (three months).	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bath fees	...	...	396 12 10	
Out-patients' fees	...	...	16 5 6	
Tennis-players, &c.	...	...	27 4 0	
	...	...	440 2 4	440 2 4
Rotorua.				
Sanatorium patients' fees	668 16 6	813 13 6	717 3 3	
Out-patients' fees	419 10 0	480 7 6	589 10 0	
Sale of bath-tickets	1,027 18 5	1,522 0 4	1,874 5 7	
Water fees	77 10 0	144 5 0	132 12 6	
Electric-light charges	...	...	544 19 0	
Tennis-players, &c.	...	36 12 8	47 7 0	
Round trip (four months)	...	...	565 5 0	
"Tea house" (three months)	...	...	144 19 11	
	2,193 14 11	2,996 19 0	4,616 2 3	1,619 3 3
Waikaremoana.				
Accommodation fees (two months)	...	...	66 12 6	66 12 6
Hanmer Hot Springs.				
Accommodation fees	1,139 19 10	1,344 1 2	1,200 16 10	
Sale of bath-tickets, &c.	487 6 10	552 6 4	790 8 5	
	1,627 6 8	1,896 7 6	1,991 5 3	94 17 9
Pukaki Accommodation-house.				
Accommodation fees (three months)	...	...	131 11 0	131 11 0
"Hermitage."				
Fees	358 16 6	597 10 4	914 15 6	317 5 2
Head Office.				
Sales, pamphlets, cards, &c.	...	...	240 12 10	240 12 10
Totals	4,179 18 1	5,490 16 10	8,401 1 8	2,910 4 10

Agencies.

The establishment of inquiry offices at the principal tourist centres has proved eminently successful. The large number of inquiries as to travel and other matters pertaining to settlement in New Zealand, not only by visitors, but also by residents of the colony, is an indication that such offices are filling a public requirement. Visitors have very freely expressed their appreciation of the value of the services rendered them by the tourist agencies, and many newspapers and magazines published outside New Zealand have offered the opinion that "the establishment of this Department is one of the most progressive actions of the Government." I quote one example extracted from a newspaper published in Sweden :—

Tourist Bureaux in New Zealand.

A much-appreciated facility which the Government of New Zealand has instituted is the Tourist Bureaux in the larger cities. Here strangers and tourists may go for any information they desire, free of cost, and without fear of being sent to any special railway, as in other countries, where people are always working for their own ends. As the Government controls the railways as well, you can get full information without running the risk of being misled by interested agents. The Tourist Department has also printed guides and books, which are obtainable at a very small cost. This is a great assistance to tourists, and is a step in the right direction.

In many other foreign papers the Government inquiry offices have been referred to in similar terms of appreciation.

In addition to the agencies mentioned in my last annual report, an office has been opened in Dunedin City. The opening of this agency was deferred, owing to the difficulty experienced in obtaining suitable premises. Those acquired in High Street are convenient for the public and otherwise satisfactory. Mr. Gow, the Commercial Agent for New Zealand in South Africa, is also acting as the Tourist Department's representative there, while the Agent-General is carrying out work of a similar nature in London.

I would again draw your attention to the advisableness of establishing agency offices for the colony in Sydney and Melbourne in the near future, and if these should be successful in promoting settlement and increasing the number of visitors to this colony, the question of extending such agencies to San Francisco, Colombo, and Vancouver should be considered. The establishment of agencies at these points would bring New Zealand into touch with practically the bulk of the travelling English-speaking people. The value of having active and intelligent representatives in such places to keep New Zealand prominently before residents and travellers would, in my opinion, be incalculable. As I previously pointed out, these offices need not be expensively conducted, but a feature should be a good exhibition of New Zealand products, in addition to pictures of our farming, industrial life, and scenery. By supplying information *vivâ voce* as to the general resources of this country, its climate, cost of travel, &c., a great deal could be done towards directing a desirable class of settlers to its shores.

Advertising.

The Department has during the past year devoted much attention to the systematic advertising of New Zealand and its scenic and health resorts. An active scheme of advertising is carried on, and not only are the spas and pleasure-places of the colony advertised, but a leading feature is made of New Zealand's attractions as a country for permanent settlement. The advertisement of New Zealand in other countries is as yet in its infancy, but even up to the present excellent results have been achieved.

The value of photographs as a means of directing attention to this country and the scenic treasures which it contains cannot be too fully recognised. During the past year the policy of photographing the scenery, natural wonders, and leading cities and towns has been further pursued. The Department now possesses one of the finest selections of photographic negatives in New Zealand. Two thousand eight hundred of these pictures have been circulated within and outside the colony during the year, and it is hoped to make photography one of the leading methods of advertising New Zealand. Lantern-slides of New Zealand scenery have been in great demand in overseas countries, including Australia, America, and England. A hundred thousand coloured post-cards of New Zealand scenery were obtained, and sold very rapidly, many orders coming from Melbourne and Sydney. A further supply of 100,000 is being obtained for issue.

Guide-books and pamphlets relative to New Zealand have been issued. Others are now in course of preparation by the Department, in pursuance of a scheme to deal thoroughly with all the scenic districts and routes of travel. Four thousand three hundred pamphlets have been sold and distributed free during the year.

The Department's Itinerary of Travel in New Zealand is in great request amongst visitors. It is proposed to include a few selected advertisements in future issues, with a view of recouping a portion of the cost of production. The Department will then be enabled to distribute the book free, instead of selling it as at present, and thereby assure a greater circulation.

The Department has been in communication with the United Devon Association, England, with reference to reciprocal distribution of guide-books and other literature dealing with scenic resorts. The association has a very large membership, and the interest aroused amongst the members, and the advertisement of New Zealand in the Devonshire Press, cannot but have favourable results in directing attention towards this country. The association has promised to circulate New Zealand literature throughout Devon. The "Devonian," published by the association, has been placed in the agencies of the Department in New Zealand for the use of visitors.

Destruction of Forest.

The lamentable destruction of the New Zealand native forests is a matter towards which I may be permitted to direct earnest attention. The advance of settlement and the need for milling-timbers are responsible for the felling annually of immense areas of bush, more particularly in the North Island. No reasonable objection can be offered to the clearing of forest lands well fitted for settlement, or to the timber-milling industry conducted under proper restrictions. But our forests have been and are still being destroyed in a wholesale ruthless manner, without a thought being given to the future. In many cases bush lands have been sold for very small sums, and valuable timber has been wasted in a manner which is absolutely a crime against the nation. The timber on areas of utterly worthless land, quite unfit for settlement, has been burnt off, denuding the soil of the only good crop it will ever produce. Very often, too, neither the bush felled nor the land is of any commercial value, whereas had the bush been preserved the country-side would at least have retained its most attractive feature. It is pitiful to travel through such districts in New Zealand, made bare and desolate by the destruction of these grand growths of untold centuries. Some of the chief routes of tourist traffic in the colony have in this way been robbed of a great deal of their beauty. In many parts of the Marlborough Sounds, for example, the damage is irreparable. There are many districts of scenic interests where the forest can yet be spared, but immediate action is necessary. The main trunk line through the Waimarino Forest is a case in point. It is a national obligation that a large portion of this fine forest on both sides of the railway-line should be preserved strictly intact. In years to come this route will be one of the most popular tourist tracks in New Zealand, and the Waimarino and adjacent woodlands will be the only stretch of forest of any account on the whole journey between Wellington and Auckland. The beauty of the

Mamaku Forest, through which the Auckland–Rotorua Railway passes, has been grievously marred by the operations of the timber-millers. It is urgently necessary that further destruction of this bush in the vicinity of the railway-line should be interdicted. The removal of the splendid pohutukawa trees on the Auckland coast, particularly on the Hauraki Gulf islands, is also deplorable.

I would most strongly recommend the Government to immediately proceed to resume the control of specially interesting and attractive forest lands on the principal routes of travel, and to rigidly conserve scenic forests now in the hands of the Crown where the preservation of such timbered areas would not interfere with the progress of settlement. There are many regions of forest which are of little or no commercial value, but which immeasurably enhance the attractiveness of the country in the eye of the traveller. The vanishing native-bird life also has sympathetic claims upon the people of the colony. Many of these otherwise useless forests on rough mountainous land would, if saved from felling and burning, not only agreeably adorn the routes of travel, but also serve as a last home for the rarer New Zealand birds. The Government might also assist in the preservation of forests by making such provision in the conditions of land-tenure as would encourage settlers taking up new bush land from the Crown to leave untouched reasonable areas of timber, instead of felling and burning the whole of the bush on their sections. I would also suggest that in cases where forests contain timber of value for milling purposes, but where the land is not fit for agricultural or pastoral occupations, the removal of the milling-timbers be conducted under Government supervision, and that strict regulations be laid down to prevent the destruction of young forest-growth. Stringent measures should be taken for the conservation of the forests still standing; and, seeing that the Government is annually spending a large sum on afforesting-work, I am of the opinion that it should see that not a single native tree is wastefully or unnecessarily cut down. If some such steps as those I suggest are adopted, it is possible to save many magnificent areas of forest which if delivered over to the fire-stick would leave in their place unsightly and barren wastes for all time.

Preservation of Historic Spots.

One of the national duties now devolving upon the Government is the care of places of historic importance throughout the colony. It is highly desirable that the preservation of these localities, and the perpetuation of the associations connected with them, should be intrusted to some Department of State. During the short period that the Department of Tourist and Health Resorts has been in existence it has endeavoured to direct attention to this subject, and to awaken public sympathy in favour of preserving as sacred places made memorable by events of the past, more particularly the scenes of the wars of 1860–70. New Zealand should profit by the example of older countries, where old battle-grounds and scenes of interesting associations are jealously cared for as the property of the nation. Such a sentiment is helpful to the formation of a truly patriotic and a national spirit, and there is the more matter-of-fact advantage that it pays. Overseas visitors to a country are often far more deeply interested in historic associations of the land than are its inhabitants. Local history and romance have a value which very closely approaches that of scenery, and in this colony we have all the elements which should make it one of the most interesting countries on the traveller's world-route.

A deplorable indifference to such considerations has prevailed in most parts of New Zealand in the past. In various districts, more especially in Waikato and Taranaki, redoubts and pas have been deliberately razed long after the cessation of the Maori troubles. In too many instances local bodies have been the offenders—these monuments of our history-making days were often looked upon as useless excrescences which should be destroyed as quickly and as completely as possible. Fortunately a wider and broader feeling is now abroad, and local residents are in many cases willing and anxious to co-operate with the Government in the work of conserving these spots. Hundreds of such localities can be named, many of them not only interesting because of their associations, but beautiful in their accessories of scenery. Some of them are public reserves; others are on private property; many on Native lands. It is advisable that the principal localities should be inspected, in order to prevent any further vandalism and to obtain data on which to frame suggestions for their permanent upkeep in as nearly as possible their original form. The sites of the old pas of Ohaeawai and Ruapekapeka in Heke's war in the North; the scenes of such engagements as Rangiriri, Orakau, Ngatapa, Porere; the more important positions attacked in the Taranaki campaign; the ancient fortifications, &c., on Banks Peninsula and elsewhere in the South should all receive attention. Such military blockhouses and redoubts as still exist throughout the North Island are worth keeping intact and restoring where necessary. The United States of America sets us an example in this respect which may well be followed. The nation which has carried utilitarianism to its highest pitch is also the foremost in preserving its sacred landmarks, and in ransacking every corner for stores and records which enhance the interest of its beauty-spots in places of historic memory in the eyes of the world.

Sport.

The value of sport as an attraction to visitors from the outside world cannot be too highly estimated. The excellent deer-stalking and trout-fishing to be had throughout the colony brings many shooting-men and anglers from the United Kingdom, India, and elsewhere. Many travellers are struck with the fact that better shooting is to be had in the red-deer districts of the colony than in older lands, and that the pursuit of the sport is much less expensive here. The aim of the Department must be to make New Zealand one of the foremost of the sporting countries in the world. This colony has all the natural attributes necessary to that end. Several kinds of suitable big game are required, and I am convinced that any money spent in the direction of importation and acclimatisation of such will be well spent, and would be recouped time and again in the future. In order to ascertain on what terms and conditions suitable animals can be obtained, the Department has been in communication with Great Britain, the United States,

Canada, Germany, and Austria. I hope to be in a position to place a definite proposal before the Government at an early date. During the year sixteen red deer were imported from Victoria. These animals were presented to the Department by Robert Chirnside, Esq., of Werribee Park, Werribee, and have been liberated half in Westland, and half near Lake Wakatipu.

With a view of preventing the wholesale slaughter of deer by persons who have no regard for the nation's right, it has been considered advisable to reserve 32,000 acres of Crown land, known as the "Government Bush," in South Wairarapa as a deer-preserve. The timber on this area is of little milling-value, and the land generally is not adapted for either agricultural or pastoral purposes. A large block of bush lands surrounding Lake Waikaremoana has been declared a preserve for native birds. The bird-life at this lake is of a very interesting nature, and should be strictly protected.

At the instigation of the Department, the huia has been absolutely protected throughout the colony, and the blue mountain-duck protected from year to year.

A number of paradise duck have been liberated by the Department on the lakes in the Rotorua district, and have been protected for the present in order to allow them time to sufficiently increase to afford good sport.

Shooting and Fishing Seasons, and License Fees.

I am strongly of opinion that the shooting and fishing seasons and license fees throughout the colony should be uniform and be fixed by statute, also that for the right of taking native game a small license fee (say, 5s.) should be charged to persons not holding a license for imported game. Such a restriction is very necessary for the proper protection of this class of game. The seasons should, in my opinion, be as follows: Deer, 1st March to 30th April; feathered game, 1st May to 31st July; fishing, 1st November to 15th April. The shooting season for feathered game opening as it does at present in April in the southern portion of the colony permits the ruthless slaughter of large numbers of duck and other water-fowl when in the flapper stage. The fact that a large number of trout taken in the latter half of the month of April have been found in an advanced spawning stage, or actually spawning, leads me to strongly recommend that the season should close not later than the 15th April.

Poaching is carried on in many districts in a systematic and wholesale manner, and I would suggest that the Government should consider the question of giving acclimatisation societies more assistance in the protection of game. In my opinion the services of members of the Police Force, Stock Inspectors, and Rabbit Agents throughout the colony might be utilised to great advantage to prevent breaches of the Animals Protection Acts and Fisheries Conservation Acts.

HELENSVILLE.

The question of the Government being asked to take over the hot springs at Helensville has been mooted by members of the Helensville Town Board, in which body the springs are now vested, and it is expected that a direct request will shortly be made to this effect. Although these springs are not specially valuable from a balneological point of view, they would if properly developed afford excellent pleasure baths, and, being situated near the railway-line, only thirty-eight miles from Auckland City, should prove financially remunerative.

LITTLE BARRIER ISLAND.

For some years past the administration of this island—a State reserve for the preservation of New Zealand fauna and flora—has been in the hands of the Auckland Institute. The annual report of that body will be found in the appendices to this report.

It will be seen from the report that the native birds are very numerous, and are increasing on the island, where they are secure from molestation. The Institute has been paid the usual Government subsidy of £200.

TE AROHA.

In my last annual report I suggested the desirability of the Government resuming control of the Te Aroha Thermal Domain, baths, &c.

At a meeting held on the 1st October, 1902, the Te Aroha Domain Board unanimously passed the following resolution: "That this Board is of opinion that, in the best interests of the Domain, Government should resume control of same, and hereby requests that the Government shall take over the management of the Domain, baths, and springs per medium of the Tourist and Health Resorts Department."

The Government accordingly, by Order in Council dated the 7th January, 1903, resumed control, vesting the reserve containing the springs, &c., in the Minister in charge of this Department, under the provisions of "The Public Domains Act, 1881." All employees in the service of the Domain Board have been given employment by the Department, at the same salaries, in the same positions as they previously held. An amount of £7 19s., balance of moneys in the hands of the Board, was paid to the Public Account, and the Government accepted the Board's liabilities, amounting to £409 4s. 4d., for contracts let and works in progress.

With grants totalling £1,000 made in March and July, 1902, and augmented by its ordinary revenue, the Domain Board had been enabled to carry out various necessary improvements in baths and Domain, in addition to meeting the usual charges for maintenance. The following works were carried out prior to the Government resuming control: Two bath-houses which had become unfit for use were rebuilt, and other bath-buildings renovated and made more comfortable and attractive. The "Octagon" at the drinking-springs was removed to a better site and renovated, and the facilities for obtaining drinking-waters improved. The bowling-green was relaid and improved, a comfortable pavilion for the use of bowlers erected, and the Domain generally received considerable attention.

During the current year it will be necessary to provide proper consulting-rooms for the Resident Medical Officer, either by erecting new buildings or materially altering those now in existence.

A cold-water swimming-bath, constructed by the late Domain Board, has proved to be unsatisfactory, owing to the foundations being faulty. This bath should be reconstructed at the earliest possible date. The Domain will also require some further attention to improve its general condition.

The revenue from baths, library, and playing-grounds for the year ending the 31st December, 1902, amounted to £1,030 7s., as against £1,009 15s. 9d. for the previous year. The revenue collected by this Department from the 1st January to the 31st March, 1903, amounted to £440 2s. 4d.

Dr. Kenny, who was in charge of the Rotorua Sanatorium and baths prior to the appointment of Dr. Wohlmann, has been transferred to Te Aroha. The appointment of a Resident Medical Officer at Te Aroha should assist in increasing the popularity of the place as a tourist and health resort, and at the same time place at the disposal of the residents of the district the services of a qualified medical practitioner. The Resident Medical Officer will, in addition to attending to baths, &c., take up a general medical practice, there being no other medical officer in the town or its immediate vicinity. As the existing medical fees are somewhat high, a special report and recommendation respecting them will be submitted for your consideration. The report of the Resident Medical Officer will be found in the appendices to this report.

Rotorua.

The scientific development of Rotorua's healing-waters and the beautifying of the town and its surroundings are amongst the important considerations engaging the attention of this Department.

The traffic to Rotorua has nearly doubled itself since 1901. For the year ending the 31st March, 1902, the total number of passengers booked by railway to Rotorua was 5,606; for the year ending the 31st March, 1903, the number was 10,891. Of these, 1,409 travelled at holiday-excursion rates; 527 on special excursions; 586 on round-trip, and 8,369 at ordinary rates. A great deal of this increase of traffic is doubtless to be credited to the endeavours of this Department to still further popularise Rotorua as a holiday and health resort. The visitors to Rotorua by the various coaching routes from the south and east are not included in the foregoing figures, as their numbers cannot be ascertained.

Dr. A. S. Wohlmann, of Bath, England, who was engaged by the Government as Balneologist, arrived in New Zealand in July last, and at once proceeded to Rotorua—being placed in charge of the baths and Sanatorium there. I am gratified to find that Dr. Wohlmann fully indorses my previous recommendations regarding the immediate necessity for new bath-buildings, the provision of a good hydropathic establishment, and the erection of a small general hospital. Reference to each of these matters will be found in Dr. Wohlmann's report in the appendices.

Maori Features at Rotorua.

One great factor in the attractiveness of this district is the Maori element. I am strongly of opinion that everything possible should be done to preserve and, where necessary, revive the picturesque Maori life. The study of Maori types and curious ways and customs comes second only to the geysers in their interest for visitors, particularly foreign travellers. But the lament of many a visitor has been that there is not enough of the Maori element in the landscape. For instance, the ugliest of little weatherboard shanties too often meet the eye where one might naturally expect to find a gaily painted and decorated whare of Native design. The foreshore of Lake Rotorua, in particular, is a place which should be made as pleasant to the eye as possible, and Maori decorative art might with great advantage be used in buildings in the vicinity.

This Department is doing what it can to foster the olden branches of artistic ingenuity and industry, more especially wood-carving. Employment is given to expert wood-carvers, and in a small way opportunity is taken of utilising Native designs and methods in buildings erected by the Department.

A successful effort has also been made to revive the Maoris' interest in the building of canoes, and the aquatic carnival held on the lake early this year included war-canoe races. At the carnival to be held next summer these races will be even more attractive, and as the only surviving contests between canoes fitted up in exact representation of the old-time carved and plumed war-craft of the Maoris they should attract not only New-Zealanders, but many overseas sightseers. A flavour of ancient tribal rivalry is introduced in the friendly emulation of the Waikato canoeists. Next summer Waikato propose to send their celebrated war-canoe "Taheretikitiki" to compete in the big races.

The Sanatorium.

As pointed out in my last annual report, the building at present used as a Sanatorium does not adequately meet the requirements of Rotorua. There is urgent need for a more up-to-date building, where paying patients can be given proper treatment under agreeable conditions.

I would recommend for the consideration of the Government that such a building should be provided to contain accommodation for not less than fifty patients, and that the existing building should be utilised for indigent patients and for those who cannot afford to pay the charges which would be necessary in a high-class spa. I am convinced that such an establishment would, besides meeting an urgent demand, prove highly remunerative to the Government.

In order to give Dr. Wohlmann more time to attend to balneological work, and to provide for proper attention to the Sanatorium and the baths during his absence from Rotorua, it became necessary to have a House Surgeon at Rotorua. Dr. W. B. Craig has been appointed to this post.

In addition to assisting Dr. Wohlmann, Dr. Craig undertakes the treatment of all Maoris in the district. I would like to point out that this Department is bearing the whole cost of the free treatment of Maoris, with the exception that the Justice Department pays a portion of the original cost of the medicines supplied. An extra nurse has been added to the Sanatorium staff.

Owing to the want of accommodation in the building, it has been found necessary to provide rooms for the Matron, nurses, and clerk outside the main building. This has been done at a minimum cost by removing and renovating small buildings already in existence. The main building has been kept in good repair, and some additional furniture and fittings necessary for the comfort of the patients and staff added.

A small mortuary has been built in order to provide, in case of death, for the immediate removal of a body from the wards of the Sanatorium.

The fees collected for accommodation in the Sanatorium and doctor's consultation fees for the year 1902–3 amounted to £1,306 13s. 3d., as against £1,294 1s. for the previous year. There was a decrease in the accommodation fees, and an increase in the doctor's consultation fees. The decrease in the accommodation fees is chiefly due to the lessened number of female patients applying for treatment; while a large number of male patients had to be refused for want of accommodation, the women's ward was seldom fully occupied.

MINERAL DRINKING-WATERS.

It has been deemed advisable to regularly convey drinking-water from the "Soda Springs" at Te Aroha to Rotorua, and this is being sold at a charge just sufficient to cover cost of transport and handling. When the tea-house building is completed various mineral drinking-waters will be vended there at a small charge.

BATHS.

The increase in the number of baths taken may be regarded as a fair indication of the increased popularity of Rotorua. During the year 1902–3 a total of 94,846 baths were taken (including 15,042 free to returned Contingent-men and Sanatorium patients), giving a revenue of £1,874 5s. 7d., as against 80,003 baths and a revenue of £1,522 0s. 4d. for the previous year, showing an increase of 14,843 baths and £352 5s. 3d. revenue. Since this Department took control, two years ago, the revenue from this source has nearly doubled.

The Pavilion Bath buildings erected in 1882 are fast decaying, and it has been necessary to expend considerable sums during the past year to improve their appearance and keep them fit for occupation. The proposed new building, for which plans and specifications are being prepared, cannot be put in hand too soon. As previously pointed out, the present buildings, independently of their decaying condition, do not provide anything like the necessary facilities for modern balneological treatment. The proposed new building will appear somewhat expensive at the outset, but it has been designed with a view to filling requirements for many years to come—keeping in prospect the very rapid growth of the traffic to Rotorua. The plans provide for an attractive exterior as well as an eminently useful interior. Dr. Wohlmann's report (Appendix No. 1) deals very fully with this subject.

In order to provide for massage treatment, a new building has been erected, and fitted with the most modern appliances, and two skilful operators appointed (a masseuse and masseur). The water for these baths is supplied at high pressure by unique hydraulic machinery, designed and fitted by Mr. R. C. White, electrical engineer in charge of the Government Electrical-power Station at Okere Falls.

ROTORUA GARDENS.

The gardens and recreation-grounds, which now rank as the finest in the colony and are one of the great attractions to the district, have been extended and improved during the past year. The Queen's Drive has been extended some 17½ chains, and a number of new paths laid down, sixty garden-seats have been added, and also a very large number of trees, shrubs, and flowering-plants. The aviary has been improved and the number of native birds increased. This feature of the grounds has proved very interesting to visitors.

Owing to the large amount of pumice in the subsoil, many parts of the gardens need frequent top-dressings, and as the soil for this purpose has to be carted from some distance the cost of general maintenance is considerably increased.

The reserves at Pukeroa, Kuirau, and Hamurana, together with the various Government enclosures in the township, have been kept in order as usual by the gardeners. A site near the shore of the lake has been prepared for the new bath-buildings shortly to be erected. The fees received for the use of the playing-grounds amounted to £47 7s. as against £36 12s. 8d. for the previous year.

As an additional attraction to these gardens, two bands of musicians have been engaged, each to play twice weekly during the summer months. In one brass band all the performers are Maoris; the other is a European band. During last season open-air concerts were successfully organized by this Department's local staff in conjunction with the townspeople.

TEA-HOUSE.

In December last a marquee was erected as a temporary tea-house on a site near the tennis-court and bowling-green in the Sanatorium-grounds, and furnished with the necessary tables and chairs, prettily dressed Native girls acting as attendants. The marquee was very largely patronised by both visitors and residents, the receipts up to the end of March—a little over three months—amounting to £144 19s. 11d. An attractive building is now being erected to serve as a tea-house, mineral drinking-water depot, and general lounge-room. A wide verandah, where visitors can rest, read, and get refreshments, sheltered from the heat of the summer sun, is a feature of this building. I anticipate that it will prove not only a pleasant retreat in the summer season, but also a financial success.

BUILDINGS.

All departmental buildings have been kept in good order and repair. A new bath-building (previously referred to) for massage treatment has been added. A workshop has been built for the storage of electrical material, and for carrying on work in connection with the maintenance and the extension of the electric-light installation. A small dark-room has been added to the Tourist Inquiry Office for the use of photographers. The existing office is conducted in conjunction with the Works Offices; but, as the location of this office is somewhat inconvenient to tourists, and the work done there has grown so large, it has been found necessary to make provision for separating them by erecting a new Tourist Inquiry Office in Fenton Street, near the Post-office. A cottage for the assistant gardener has been provided on Kuirau Reserve.

ROTORUA ELECTRIC-LIGHTING WORKS.

Owing to the rapid growth of the town, the applications for private lighting during the past twelve months have exceeded all expectations. The extensions have been considerable, and it has been found necessary to import a considerable portion of the material required.

In erecting new lines care is taken to anticipate future requirements, and the cost of connecting other premises within reach of these lines will be comparatively small. One hundred and seventy-seven totara line and arc-lamp poles are now erected within the town, and thirty-six iron branch poles. The total length of insulated cable, branches and mains, is 15½ miles, 3½ miles of which have been erected lately.

Forty-six transformers, with a total output of 108·38 kilowatts, are now connected to the town mains; and ten others, supplying an additional 30·30 kilowatts, will be erected shortly.

Last winter a requisition was received to continue the lighting from midnight to daylight. On inquiry it was found that only a comparatively small amount of lighting was required during those hours, and the request was not granted; but, as the number of consumers who require the light after midnight is increasing, it may soon be necessary to run from sunset to sunrise.

The total amount of lighting now connected with the mains is equivalent to 3,256 eight-candle-power lamps, of which number private consumers (including Railway, Post, Survey, and Justice Departments) have 2,357; Tourist Department for Sanatorium, bath-buildings, offices, and residences, 475; and for street-lighting, 424.

Substantial belt-guards have been constructed and erected at the generator-station; also metal troughs for protecting the main belts from flood-water, so that all possible provision is now made against accident or damage in this direction.

In order to facilitate the work of running both alternators in parallel, a rearrangement of the switching and controlling apparatus has been made. In connection with this work an automatic machine has been designed and built by Mr. White, the electrician, for coupling and controlling both sets. The apparatus is now in daily use, and the work of running the plant is easily done by one attendant. Prior to the installation of this gear the work, though performed by two men, was difficult and unsatisfactory.

The weather throughout the year has been very favourable, and no trouble has been caused by floods or lightning. All the working portions of the installation have been periodically overhauled, and with the exception of the internal parts of the turbines, which are difficult to protect from the erosive action of the water, the whole is in good repair.

The fees for lighting collected during the year amounted to £544 19s. As a number of consumers incurred liabilities while the works were in the hands of the contractors the previous year, which liabilities have been paid and included in this £544 19s., the amount does not exactly represent the income from the works for one year. This amount does not, of course, include any charge for lighting the baths, Sanatorium, residences, offices, and other buildings belonging to the Tourist Department, nor for street-lighting.

The engineer advises that the full output of the present generator-plant, delivered in Rotorua, is sufficient to supply a total of 2,000 eight-candle-power lamps; and, although the total now connected is never in use at one time, a diagram of the station load shows that 60 per cent. at least of the total must be provided for.

The following figures show the percentages of lighting in constant use:—

Private installations ...	2,357	8-candle-power, at	50%	of total connected	=	1,178·5
Tourist Department ...	475	"	at 80%	"	=	380
Street-lighting	424	"	at 100%	"	=	424
Total 8-candle-power lamps connected	3,256			Total in use	=	1,982·5

As the small margin is all that remains for future extension, the plant is practically fully loaded, so that, without taking into consideration the need of a spare set in case of emergency, the question of increasing the generator plant requires immediate attention in order that power may be available for lighting additional houses and streets and for lighting and heating the new bath-buildings.

Every care is taken to anticipate and prevent a breakdown. The works have been running steadily for over two years, and there has not been any stoppage or delay through failure of the generating plant. The engineer states, however, that there is now no provision for accidents or overhaul to either of the sets, and should anything occur to disable any portion of the generator plant much inconvenience would result. Under the present conditions of working no preparation can be made to avoid this, as both sets are in use every day of the week. To provide for accidents or overhaul, I am advised that a spare set is required, consisting of one 50-kilowatt alternator and exciter, with switchboard panel and fittings, and one Waverley turbine complete with beltings and fittings. A further excavation would have to be made, and the dynamo-house and flume extended

about 25 ft. With this additional plant the capacity of the generator-station would not be greatly increased. The new plant could only be considered a spare set to relieve either of the two now in use; and, although all three could be run to increase the present output, yet the full output of each set could not be obtained without large and expensive additions to the flume. However, this plan if adopted would place the works in a better position in regard to a reserve for emergency, and also provide sufficient extra current for the new bath-buildings and drainage-works.

The Township of Rotorua is rapidly expanding, and when the alterations in the electrical-light works are decided upon provision should, I think, be made for all requirements for some years to come. The nature of the present station-site presents great difficulties in extending the building and plant, and any large additions would practically mean a new station and water-supply, and also the doubling of the main line to Rotorua. The new station could not be provided at the Okere site, except at a very great expense, owing to the amount of excavation necessary. A splendid site for heavier works is available within a short distance of the present station, where a fall of water of over 90 ft. is obtainable. Enlarged works here would, in addition to supplying the present demand, provide sufficient power for any proposed works such as pumping water for town-supply, tramway-traction, &c., and also leave an ample margin for lighting and power extensions.

WATER-SUPPLY.

It has been found necessary to repair and partly renew 70 chains of wooden fluming which had decayed, and also to strengthen parts of the trestle carrying the race. A number of new pipes have been laid in place of those destroyed by the acids in the earth. Extensions to the system have been made to increase the supply to Ohinemutu and the Native village there, also to supply the Geyser Hotel, the State nursery, and other buildings at Whakarewarewa, as well as the gardens, baths, and new buildings in Rotorua Township. The piping used for these extensions was as follows: 1,980 ft. of 4 in., 943 ft. of 3 in., 150 ft. of 2 in., 490 ft. of 1½ in., 2,390 ft. of 1 in., 350 ft. of ¾ in., and 360 ft. of ½ in.

For the purpose of ascertaining whether a better water-supply is obtainable at a reasonable cost, I last year recommended that a competent engineer should be engaged to ascertain what other supplies are available, and the cost of utilising them. This work was intrusted to Mr. Stewart, C.E., Auckland, and his report thereon has been sent to you.

The fees collected for water-supply amount to £132 12s. 6d., as against £144 5s. for last year.

DRAINAGE.

The fear expressed in my last annual report that the drainage system was in a bad condition throughout when taken over by this Department has been more than confirmed by the engineer's report, which has since been placed before you. It is scarcely necessary for me to again mention the urgent necessity of having the system placed in thorough order. As far as ordinary sanitary arrangements are concerned, the pan system in use is satisfactory, but owing to the nature of the soil there is a risk of slops from hotels and boardinghouses percolating to the mineral springs and causing pollution.

Rotorua–Rotoiti Trip.

Improvements have been effected at the Ohau Stream, which connects Lakes Rotorua and Rotoiti by snagging and removing large trees from the channel, and the scrub has been cleared on both sides. The work was carried out by Native labour, under the direction of the Department.

Whakarewarewa Reserve.

The geysers and other interesting forms of thermal action at this resort attract visitors in increasing numbers. The road to the reserve partly subsided over a small area of boiling springs, necessitating the erection of a bridge 56 ft. long. The bridge crossing the Puarenga Creek has been repaired, and handrails added. A small platform has been erected on the side of this bridge, and rocks have been cleared from the stream, in order to enable the Native children to carry out their practice of diving for the amusement of visitors without incurring so much danger to themselves as was previously the case.

For the purpose of affording shelter to visitors, a pavilion is being built in the reserve, on a site from which the geysers may be conveniently viewed. The building is being constructed as far as possible after the Maori style; the roof is of raupo, covered with bark; and the walls are decorated with well-executed Maori carvings. A shelter "look-out" is also being erected for the use of the caretaker in wet weather.

An effort is being made to enhance the picturesque character of the geyser-valley by the construction of an old-time Maori fortified pa, situated on the site of an ancient and historic pa of the Tuhourangi. Carved houses and *patakas*, and some whares constructed after the old style, will be erected.

On the Arikikapakapa thermal reserve, adjoining Whakarewarewa, 14 chains of fencing have been added, paths made, and a large number of native trees and shrubs obtained from the State nursery have been planted.

Waimangu Geyser and Round Trip.

The Waimangu Geyser—one of the great wonders of the world—fully maintains its astounding activity. Should its marvellous vitality continue it will be to New Zealand what Niagara is to America as a spectacle of colossal proportions.

A new and most attractive tour from Rotorua *viâ* Lakes Tikitapu and Rotomahana to Te Wairoa Township, and across Lakes Tarawera and Rotomahana to Waimangu Geyser, has been established by the Department in conjunction with the Rotorua coaching companies. The coaches convey passengers from Rotorua to Te Wairoa and from Rotorua to Waimangu, or *vice versâ*, and

the Department conveys them from Te Wairoa to Waimangu over Lakes Tarawera and Rotomahana, or *vice versâ*. The Department's charge is 11s. per passenger, including guiding. This new tour has become one of the most popular in the district. The Department built good rowing-boats for Lakes Tarawera and Rotomahana, erected a boat-shed and landing at each lake, formed a number of tracks to enable the approaches to the lakes to be traversed in comfort, and built two shelter-sheds near Waimangu. The expenditure for maintenance and construction of boats, boat-sheds, shelter-sheds, &c., up to the 31st March last, was £516 17s. 11d. The receipts, although the tour was only opened in December, amounted to £565 5s., showing a net profit of £48, after paying for all equipment and working-expenses. The organization of the trip has therefore been an unqualified success. The receipts for the year ending the 31st March, 1904, are estimated to reach £1,500. The rowing-boats now on the lakes, though capable of carrying some twenty-four passengers on each trip, have already been found too small for the work required of them, and I have to recommend that a steam-launch be placed on Tarawera and another on Rotomahana at the earliest possible date.

This excursion includes a view of Waimangu and a row over boiling water on Lake Rotomahana, and is unquestionably unique, and the most attractive tour in the thermal district. The policy of keeping such trips under Government control is, I think, one that will ultimately prove of great benefit to the tourist traffic, and of considerable financial value to the Government.

The construction of the boats, &c., for the Waimangu tour was carried out by Chief Guide Warbrick, who is in charge of these trips.

A question worthy of consideration is the desirability or otherwise of erecting barriers of some description to prevent visitors from entering the prohibited area immediately surrounding the crater-basin of Waimangu. The large stones, &c., ejected from the geyser frequently fall a considerable distance beyond the margin of the crater, and owing to visitors approaching dangerously close to the crater it has been found necessary to erect notice-boards defining the limit of safety. These warnings, and the admonitions of the guide, have not always, however, deterred people from going within the danger radius. Barbed-wire fences would probably serve the purpose, but I am reluctant to recommend their erection, as they would in a measure detract from the strikingly weird character of Waimangu surroundings.

The demand for accommodation in the vicinity of Waimangu has been so persistently urged that the Government decided to erect an accommodation-house close at hand. A contract for a suitable building to contain fifteen rooms was let, and the work of construction will shortly be completed. The building occupies a prominent position overlooking the geyser, so that from the verandah or the dining-room or sitting-room windows a good view of the geyser in action can be had.

This house will be open for the accommodation of visitors before next tourist season begins. The popularity of the geyser is such that, although the building will accommodate fifteen to twenty guests, I am convinced that it will be found necessary to provide additional bedrooms at an early date. There is every reason to believe that this house will prove a financial success.

Orakei Korako.

At the instance of this Department, the Roads Department is constructing a coach-road from Atiamuri to Orakei Korako, along the banks of the Waikato River. This road will open up a very fine scenic drive on the journey between Rotorua and Taupo, and the interesting Geyser Valley of Orakei Korako will be an agreeable break in the long coach trip. It is expected to be in readiness for traffic by the coming summer. A boat has been built by Guide Warbrick, and placed on the Waikato River to replace the Maori canoe used in ferrying visitors across from Orakei Korako to the terraces and the Alum Cave on the opposite bank.

The sum of £37 has been spent during the year in making new tracks and repairing existing ones.

This district is little visited at present, but is certain to become one of the popular resorts in the thermal-springs region. Its remarkable silica terraces of many colours, its beautiful iridescent cave, its geysers, and excellent mineral waters will secure for the place a wide celebrity in years to come.

Taupo Domain.

In March last a sum of £250 was paid to the Taupo Domain Board for improvements to the Domain. During the year the Board planted 270 trees obtained from the Forestry Department; of that number 250 are reported to be growing. Further planting will be done during the year, and it is proposed to lay down an asphalt tennis-court for the use of visitors.

Tokaanu–Wanganui River Road.

In connection with the Wanganui–Lake Taupo route a new road is proposed from Te Rena, on the upper Wanganui River, to Tokaanu, on the southern shores of Lake Taupo. The Public Works Department's officers report that there is a good route for such a road, which would reduce the journey from the Wanganui River to Lake Taupo from two days (as at present) to six hours. Te Rena has been fixed upon as the southern terminus of this new road, because it is at a convenient stage on the Main Trunk Railway route, some distance below Taumarunui.

Messrs. Hatrick and Co., of Wanganui, expect to be able to reach this locality with a river-launch next tourist season, and also possibly to navigate the river as high as Taumarunui. Te Rena will occupy an important position in the near future as a station on the Wanganui–Taupo route, and also as a stage on the round trip down the Main Trunk Railway from Auckland, and across country to Taupo and Rotorua, or *vice versâ*. The proposed road, which will traverse a portion of the Waimarino Forest, will provide a fine scenic drive, and it is desirable that it should be constructed as soon as possible.

Should the head of power-launch navigation be fixed at Te Rena, the route thence to Lake Taupo will obviate the present long journey from Pipiriki to Tokaanu by way of Waiouru.

Taranaki (Mount Egmont).

Mount Egmont is a scenic resort which deserves a considerable amount of attention. The mountain is one of the grandest pleasure-grounds in the colony, unique in its configuration and surroundings, situated as it is in the midst of a beautiful and thriving district; but it suffers at present from lack of adequate means of access and of proper accommodation for visitors. A few weeks' stay at a comfortable mountain-house high on the slopes of Taranaki, in a crisp, pure atmosphere, would be a splendid tonic for many an invalid. The existing alpine accommodation on Taranaki is of a very primitive description, and the roads through the bush from the radius line and up the mountain-side are in very bad order. The Egmont Domain Board and its various sub-committees have done exceedingly good work with the small amounts of Government money placed at their disposal, and those gentlemen who have patriotically endeavoured to arouse public interest in this pleasure and health resort and to provide facilities of travel for visitors deserve great credit for their unselfish efforts. In order, however, that the roads may be put in fit condition further grants are necessary.

Recently, at the invitation of the Egmont Domain Board, I visited the mountain, accompanied by the Department's photographer, and traversed the various roads leading to the mountain-houses —Dawson's Falls, North Egmont, and Stratford. These shelters were largely used by visitors during the past season, but the necessity of taking blankets and food from the nearest township deters many from ascending the mountain. During the season 1,082 persons visited the North Egmont house, 1,084 made use of the South Egmont house (Dawson's Falls), and 200 visited the western shelter (Stratford house).

In order that the vehicle-roads may be extended to the mountain-houses I would suggest that the following grants-in-aid be made by the Government: For extension and improvement of the roads to Dawson's Falls and Egmont houses, £400 each; for the Stratford Road, £200. The first two routes I consider of greater importance at present than the Stratford Road, as the Dawson's Falls and Egmont houses are larger and situated in less exposed localities. If these grants were repeated next year the two roads could be completed to their respective termini, and in 1905 a grant might be made to complete the Stratford Road. The next step I would suggest is that the three houses be connected by a good road, so that a through trip may be made from Hawera to New Plymouth, or *vice versâ*, along the mountain-side. This roading system might be extended to the construction of a vehicle-road right round the mountain at an elevation of, say, 4,000 ft., but the nature of the country may possibly present serious obstacles to such an undertaking.

Another important question for the consideration of the Government is the pressing need of a good house of accommodation on Mount Egmont. A comfortable house of about twenty rooms, similar to the Government buildings at Waimangu and Waikaremoana, where people could make a prolonged stay in the summer months without having to "rough it," would undoubtedly attract a great many visitors. I am satisfied that such an establishment if properly managed would well repay the Government. As to the location of the house, the various committees and sub-committees in the district are quite prepared to subordinate local considerations to the general good, and to leave the selection of a suitable site in the hands of the Government. Should the Government decide to establish an up-to-date accommodation-house, I am prepared to recommend a site.

Te Puia (East Coast).

The Department's Inspector has visited Te Puia Springs and reported thereon. The present great difficulty of access makes the utility of these springs purely local. A vehicle-road is now being made from Gisborne. When it is completed I would recommend the erection of suitable bath-buildings. In the meantime arrangements are being made for the necessary fencing, &c.

Morere Springs Reserve.

The tracks to the springs have been improved, and a line cleared preparatory to the fencing of the reserve in order to prevent the trespass of cattle, which are destroying the bush.

I hope to be able at an early date to arrange for the erection of a small bath to meet present requirements.

A bush-fire spread from adjoining land into the reserve last January, and some damage was done. The fire, however, by prompt action was kept in check.

Lake Waikaremoana.

The Government accommodation-house, containing fifteen rooms, erected on the shores of Waikaremoana was opened for guests in February last. It has been well and comfortably furnished, and now that first-class accommodation is available many holiday-makers should find their way to this exceptionally beautiful lake, considered by many to be the loveliest in New Zealand. The receipts for accommodation at Lake House for the months of February and March amounted to £66 12s. 6d.

An oil-launch for the use of excursionists is being built, and will be placed on the lake before the opening of next season. The launch is 35 ft. in length over all, with a beam of 7 ft. 6 in. and a depth of 3 ft. 6 in. It is fitted with an oil-engine of 10-horse power, and it has been named the "Kohurangi." Rowing-boats are also being provided for visitors, and horses and vehicles are available. In conjunction with the accommodation-house, suitable stables and a cow-shed have been erected.

A jetty for the oil-launch is required at Waikaremoana; a boat-shed is needed at Lake Waikare-iti; and a rest-house at Wairaumoana for fishermen and other visitors.

On the recommendation of this Department the forests around the lake have been proclaimed a preserve for both native and imported game, and the caretaker of Lake House is being appointed an honorary Ranger to see that the law is given effect to.

The great drawback to this pleasure resort is the present difficulty of access. The steamer service from Napier to Wairoa is very erratic, owing to the difficult bar to be crossed at the river-mouth at Wairoa, and the coach journey from Napier is somewhat tedious, as it takes two days, and the roads are rough. I would recommend that the Napier–Wairoa Road be put into good order at the earliest possible date. In order to render Waikaremoana accessible from the Rotorua side, the road from Ruatahuna through the Urewera Country requires to be completed. At present the road has penetrated that fine scenic district as far as Ruatahuna, the section over the Huiarau Range and down to the lake-shores being the uncompleted gap. When this vehicle-road is finished coaches will probably be able to make the through trip from Rotorua to the lake in two days, traversing *en route* some very effective mountain and forest scenery.

Maruia.

These springs are situated about forty-five miles from Reefton and 180 miles from Nelson. The estimated cost of making a road from Reefton is £10,000, and from Nelson £13,000. I cannot at present recommend anything like such a large expenditure in connection with these springs.

South Island Tours: Marlborough Sounds–Westland, to the Glaciers, etc.

In March I made an extended tour of the northern and West Coast districts of the South Island, travelling over the main routes of traffic.

I proceeded first to Picton and Queen Charlotte Sound, crossing thence to Pelorus Sound *viâ* Torea Portage. To my regret I found that much of the beauty of these sounds has been marred by the destruction of forests along the shores, and I would urge that residents and local bodies as well as the Government should endeavour to prevent as far as possible any further destruction of the beautiful bush adjacent to the sounds in places where land is of no value for settlement purposes.

The coach drive from Havelock to Nelson through the celebrated Rai Valley has been robbed of much of its interest by the burning of the bush. Allowance must, of course, be made for the advance of settlement in a new country, but in some of these districts the land is so poor that the only growth it will produce is birch forest.

I visited the Nelson district, and went from there through the Buller Gorge to Westport, Reefton, Greymouth, and Hokitika. I then travelled down the West Coast to the Okarito district and the Franz Josef and Fox Glaciers. The various tracks communicating with these sights were inspected, and arrangements made for improving the shelter-huts at the glaciers. The question of making a track up the Gallery Mountain, above Waiho, from the foot of the Franz Josef Glacier, was gone into, and inquiries made as to the practicability of opening up this route so as to enable visitors to cross the main range of the Southern Alps to the eastern side *viâ* Graham's Saddle. This would afford a route to the upper end of the great Tasman Glacier, and climbers would be able to cross between Waiho and the Malto Brun hut in two days. The Franz Josef Glacier is easily accessible; visitors may ride right up to its terminal face. The great charm of this glacier and the Fox is that they descend below the line of forest and ferns to within a few hundred feet of sea-level. It is of importance that the fine forest land should be preserved untouched, especially in the vicinity of the track leading from the Waiho accommodation-house to the foot of the Franz Josef Glacier. From the Waiho to the Fox Glacier is a ride of almost nineteen miles through some of the loveliest bush country in the Island. The track was found in good condition for horse traffic. The immediate approach to the glacier from the Cook Valley is through a most beautiful bit of woodland, to which the same remark as that made concerning the Waiho bush will apply. It should be jealously preserved as one of the finest things of this fine region.

The possibilities of the West Coast as a tourist route of marvellous value are enhanced by the fact that it can be traversed on the through trip to and from the Mount Cook Hermitage by way of Fitzgerald's Pass. This route, from the Fox Glacier, takes the traveller along the Copland River, thence up to the summit of Fitzgerald's Pass (7,180 ft.), and down the Hooker Glacier to the Hermitage. The route conducts the traveller into the grandest of alpine scenery, and that it presents no special difficulties is shown by the fact that last April a party including three ladies, in charge of the Government guides, accomplished the trip from Mount Cook Hermitage to the West Coast. Again, those extending their journey further south than the Fox Glacier and the Copland River may cross the dividing-range by the Haast Pass to Lake Wanaka. Due attention will be paid to the development of these routes, with a view to obviating the necessity of the tourist retracing his course after travelling down the West Coast from Hokitika.

The Westland lakes, which are a prominent feature in the scenic attraction of that region, are now easy of access, and in summer attract many visitors. The river route to Lake Mahinapua from Hokitika is, however, rendered awkward at low water by a shoal extending for some little distance, which frequently impedes navigation. To obviate this the construction of a lock is necessary. A small jetty is required at the principal landing-place on the lake.

The Westland forests are probably the finest in New Zealand, and the West Coast is certain to become one of the grandest tourist routes in the colony. But the peculiar character of the rivers south of Ross—torrential, and running in many channels over wide and shifting beds of shingle—presents great difficulties to either bridging or maintaining punt ferries, consequently the traveller has to ford the rivers, either on horseback or in a trap; the two deeper ones (the Wanganui and Whataroa) have to be crossed in rowing-boats. This makes the trip a somewhat rough one at present.

To develop this route in a satisfactory manner, acceptable to visitors from outside New Zealand, would involve an enormous expenditure. In the meantime the more adventurous, and those prepared to submit to a certain amount of discomfort, will find this district a splendid holiday ground.

Hanmer Hot Springs.

This resort maintains its popularity. Mr. and Mrs. McDonald, who were in charge of the

Spa for some years, have been transferred to the Hermitage, Mount Cook, and Mr. J. B. Gould, formerly of Wellington, has been appointed to manage the Spa, baths, gardens, plantations, &c. This arrangement is a considerable improvement on the unsatisfactory dual control which previously obtained. A masseur and masseuse have been added to the staff. The massage-rooms were opened in October last, and up to the 31st March the value of treatment was £204 5s. for 919 patients; this amount includes treatment to the value of £11 5s. which was given to indigent patients. In order to provide proper attendance at baths and facilities for bathers to obtain bath-tickets, two additional bath-attendants and two ticket-clerks have been appointed.

During the year it has been found necessary to partly refurnish the Spa in order to increase the comfort of visitors. This refurnishing has, of course, added to the expenses of "maintenance."

The receipts from the Spa for the year 1902–3 were £1,200 16s. 10d., to which should be added £94, being value of free accommodation given to indigent patients, showing a total of £1,294 16s. 10d., as against £1,344 1s. 2d. for 1901–2, and £1,139 19s. 10d. for 1900–1. The receipts for 1902–3 therefore show a slight decrease when compared with the previous year. This is due, no doubt, to the prevailing impression amongst the public that the Spa is for the accommodation of invalids taking the baths for rheumatism, &c., whereas the major portion of the building is maintained as a comfortable residence for holiday guests.

The number of baths and the receipts therefrom have been much greater during the year under review than in any other year, the figures being as follows: 1900–1, 17,964 baths, valued at £487 6s. 10d.; 1901–2, 19,985 baths, valued at £552 6s. 4d.; 1902–3, 21,719 baths, valued at £846 19s. 6d. The figures for 1902–3 included 2,012 baths, valued at £68 10s., given free to indigent patients.

The gardens have been maintained in their usual condition.

The receipts from players for use of tennis-court, croquet-lawn, and bowling-green amounted to £11 19s. 11d. for the year. For previous years no charges were made for the use of the playing-grounds.

Proposed Improvements.

Plans have been prepared for a tea and mineral-water house, doctor's consulting-room, stable, and cow-shed. The Public Works Department has been asked to put the works in hand at an early date. Plans are also being prepared for a cold-water swimming-bath, with necessary dressing-boxes, which, it is hoped, will be ready for use early next season. A bath of this sort is much needed during the summer months. The work of constructing a track to the top of Conical Hill, and the erection of a pavilion there, will be undertaken at an early date.

Inquiries are being made with a view to providing a suitable water-supply for the whole village, and also to ascertain the cost of providing a system of lighting.

The question of using motor cars for the conveyance of passengers between Culverden and the Hot Springs has also been under consideration; but, as far as can be ascertained, it is not possible at present to obtain cars capable of continuous daily running with heavy loads over rough roads. It is therefore not at present proposed to take action in this matter.

The Department will resume control of 15 acres of land contiguous to the landscape gardens, and part of this will be gradually absorbed for gardens and recreation-grounds.

It is intended to appoint a competent head gardener, and push on the work of extending and beautifying the Spa-grounds.

Arrangements are being made by the Lands Department to carry out an extensive scheme of tree-planting at Hanmer. This work is to be done with the aid of prison labour.

In June last the Department made representations to the Railway Department with a view to accelerating the train journey to Hanmer, and also suggested that the morning train to Culverden should start later than 7.35, as that hour was an inconvenient one for visitors bound for Hanmer, it not allowing a connection with the steamers from North arriving at Lyttelton. The Railway Department replied to the effect that the requirements of the traffic would not justify changes being made in the directions suggested.

PUKAKI HOTEL.

In accordance with the direction of the Government, this Department purchased the Pukaki Hotel from the Mackenzie County Council in January last for the sum of £450. It comprises nine bedrooms, two dining-rooms, office, kitchen, and bar.

Mr. and Mrs. Ross, formerly caretakers of the Hermitage Hotel, were transferred to Pukaki and placed in charge. The principal object the Government had in view when purchasing this hotel was to improve its condition and provide the accommodation necessary for visitors to the Southern Alps, which should be given effect to next spring.

Arrangements are being made for an officer of the Public Works Department to report on required improvements, and the Government will be asked to provide the necessary money to carry them out.

The receipts from January to the 31st March amounted to £131 11s.

THE HERMITAGE, SOUTHERN ALPS.

The Southern Alps have attracted a much larger number of visitors this season than hitherto. In February the Hermitage Hotel was unable to supply the demand for accommodation. I am of the opinion that should the traffic still continue to increase it will be necessary to effect considerable improvements in the hotel at an early date. The present house is erected on a site which is by no means the best available; it will be necessary to change the position when additions are undertaken. During the year the hotel has been partly refurnished to meet the requirements of visitors, and a considerable amount of repairs undertaken and some outbuildings erected. Ambulance stretchers have been placed at the Hermitage and at the alpine huts, so as to have means of

transport available in case of accidents. The carrier-pigeon service established last year has been of great assistance, the birds doing excellent service for the guides.

Among the visitors to the Hermitage during the season were His Excellency Lord Ranfurly, Lady Ranfurly, the Ladies Constance and Eileen Knox, Lord Northland, Lord Borrington, and Major Alexander.

The receipts amounted to £914 15s. 6d. for 1902–3, as against £597 10s. 4d. for 1901–2, and £358 16s. 6d. for 1900–1, the increase for the year over the previous year being £317 5s. 2d., which must be considered an exceedingly satisfactory advance.

Mr. D. McDonald and wife, who for some years had charge of the Spa at Hanmer, are now caretakers at the Hermitage.

With the increase of visitors the guiding-work has also increased. In addition to Guide Clarke, an assistant guide was employed throughout the season. An extra man was also engaged for the tracks and repairs to the Hermitage and huts, and to give occasional assistance to the guides. The revenue from guiding, hire of horses, porterage, &c., was £138 16s. 8d.

The alpine huts have been greatly improved. In the Ball hut a 6 in. concrete floor has been laid in the general room, and a wooden floor in the ladies' compartment. Similar improvements have been commenced at Malte Brun hut, and will be completed next season. Both huts have been refurnished and good oil cooking-stoves provided. Seventy-three visitors made use of the Ball hut, and twenty-eight the Malte Brun hut. Some extensive improvements have also been made to the alpine tracks.

With a view to preserving the alpine flora 18,000 acres of land have been reserved in the vicinity of the Hermitage, and Guide Clarke appointed a Crown Lands Ranger to give him the necessary authority to prevent the trespass of stock.

Guide Clarke reports that there was a considerable increase in climbing and minor excursions, and, although the weather and snow conditions proved treacherous at various times, no accident of any kind occurred. Several interesting climbing expeditions were undertaken during the season. Mr. Claud McDonald of Australia, an active member of the English Alpine Club, made two attempts on Mount Cook, first by the Hooker side and later by the Tasman, but both attempts were unsuccessful owing to the unsuitable weather and the condition of recent snowfalls. Messrs. Tennant and Bambridge made ascents of Mounts Sealy (8,631 ft.), Darwin (9,716 ft.), and the first ascents of "Rotten Tommy," or Mount Blackburn, and Climber's Col. On the 3rd April the first party of ladies to attempt to cross the Alps by the Copland Pass left the Hermitage for the West Coast. The party consisted of Mrs. Thomson and Miss Perkins, Greymouth, and Miss Barnicoat and Mr. Tennant, London, accompanied by Guide Clarke, with Fluckiger and Smith as carriers. The first night's camp was made at the foot of the pass, which was crossed the following day in a dense fog; and a sheltered rock in the Douglas Valley reached for the second night's camp. The hot springs, Welcome Flat, was the scene of the third camp, and on the fourth day Scott's accommodation-house on the west side of the Alps was safely reached. The trip is a really magnificent one, there being a glorious combination of ice-clad peaks, glaciers, forest, and river scenery. The present conditions, however, make the trip one unfit for ladies, and negotiable only by men physically strong. Before the trip can be generally recommended it would be necessary to have a good track from Scott's to Welcome Flat, and a comfortable hut erected at the latter place.

Lake Wakatipu.

The number of visitors to Lake Wakatipu during the past year has largely exceeded any previous records, due, I think, mostly to Government control of the steamers on the lake and the consequent reduction in the cost of travel.

The improvements to the Park and Esplanade at Queenstown recommended in last year's report are now being carried out by the Borough Council on a plan drawn up by the Chief Forester, and consist of the forming of paths and drives, an ornamental lake, erection of band rotunda, and preparation of a bowling green. The creek running through the grounds is being cleared of rubbish and weeds, and the borders planted with flax and suitable shrubs. Altogether about a thousand trees and shrubs are to be planted throughout the grounds as part of the plan of improvements, which is progressing in a most satisfactory manner. An amount of £500 has already been paid to the Council, and a further similar sum will be payable as the work progresses. When these improvements are completed the place will be much more attractive than formerly.

Other works, such as the track to the top of Queenstown Hill and the extension of the Queenstown–Glenorchy Road along the shores of the lake, have been undertaken, and considerable progress has been made.

Te Anau and Milford Sound Tour.

This trip is destined to be one of the most popular in the colony. It is rapidly becoming recognised that in no part of the world is there anything approaching Milford Sound for grand and magnificent scenery. Many of those who have visited these sounds recently, and who know thoroughly the fiords of northern Europe, consider that in majestic beauty the latter are far surpassed by Milford.

The organization and conduct of this tour, which has up to the present been in private hands, is not at all satisfactory, nor in the best interests of the colony. A contract for keeping in repair the track from Te Anau to Milford has been let from year to year, costing £400 last year. Owing to the large amount demanded for this work I refrained from giving more than one year's contract. Even with this expenditure there have been many complaints concerning the condition of the track. There being no Government officer near at hand it is difficult to exercise any supervision. For this outlay the Government receives no financial return whatever, the whole guiding-fees going to the contractors. I have now to strongly recommend that the Department should control the work on this track for the coming season. I am convinced that it can be maintained for a lesser

amount than that now paid, and more encouragement would be given to visitors to make this very interesting trip. A necessary step to the effective control of this track is the purchase of Glade Home, an accommodation-house at the head of Lake Te Anau. This house may not be a financial success for a year or two, but any loss thereon will be more than recovered in the lesser cost of maintenance of track and the guiding and hut-accommodation charges.

There is one other step that is necessary for the complete and effective handling of this route, and that is the acquisition of the steamer on Lake Te Anau, or the placing of a steamer thereon by the Department. Coaches are being subsidised to this lake, jetties built, and large sums of money spent in advertising for the purpose of developing the tourist traffic, and the Government is receiving no direct benefit from this expenditure, but, on the other hand, is building up private monopolies which in future it will be difficult to control in the interests of the tourist traffic. I strongly recommend that the Government should purchase and run the steamer on Lake Te Anau. The cost of acquiring the steamer now would not be very great, but every year the purchase is delayed the cost will be infinitely greater. In purchasing this steamer service and other services of a similar nature I am convinced that the Government would be acting in the best interests of the tourist traffic and of the colony generally. The Government should also appoint its own guides, and furnish the shelter-huts with food and blankets.

A power-launch, the "Lizzie," has been placed on Milford Sound by Mr. Sutherland, and is available for tourists.

Between Milford Sound and Dusky Sound, and west of Lakes Wakatipu, Te Anau, and Manawapouri, there is a large block of country, including the famous Clinton Valley through which the Milford Sound overland route passes, which for scenic grandeur is unrivalled in the colony or elsewhere. This area is interspersed with lakes, fiords, and mountains of great beauty, and is destined, if carefully preserved, to become one of the colony's foremost attractions, and in time one of its greatest assets. In addition to its value as a scenic resort, it would prove a home for a number of native birds which are too rapidly disappearing. As a big-game forest it would also be invaluable. I strongly recommend that the whole area should be reserved, and that no further private interests be allowed to grow up therein.

Stewart Island.

Two huts situated at Paterson's Inlet have been purchased for the use of visitors.

The red deer liberated on the island are reported to be doing well.

I am pleased to be able to report that there is a possibility of a more suitable class of steamer for passenger traffic being run between the Bluff and the island during the next season than hitherto.

APPENDICES.

APPENDIX I.

No. 1.—REPORT OF GOVERNMENT BALNEOLOGIST.

Department of Tourist and Health Resorts,
Government Sanatorium, Rotorua, 24th May, 1903.

SIR,—

I have the honour to present my report for the year ending the 31st March, 1903. This must necessarily be somewhat incomplete, as I commenced my duties only in July, 1902. The first few months after my arrival were chiefly taken up by a general survey of the principal thermal districts, and with an attempt to gauge the social and economic conditions of the country generally as bearing on the special needs and requirements of my own Department. I soon realised that a magnificent field of work was ready to hand, that nature had provided healing springs with prodigal hand, but that this very luxuriance of gifts made my task all the more difficult. The springs of this country would suffice not for ourselves but for a continent, and to do them all justice would require an enormous and unjustifiable expenditure.

Two courses were open to me—either to advise the Government to develop at once as many spas as possible, thereby catering for each country district; or to concentrate the great bulk of its energy and expenditure on one spot, making a really first-class watering-place, and, while not neglecting the others, only spending sufficient money on them to meet local needs, leaving to future years the gradual and expensive task of thoroughly developing them all.

To the first course there were several and serious objections. To do anything like adequate justice to all the thermal districts, even if the development of each were attempted on only a moderate scale, would involve the immediate expenditure of at least £200,000, in addition to many thousands a year in wages and upkeep. To spend large sums of money on the springs for the benefit of the *locality only* is an injustice to those great tracts of country which have no springs. The whole country has as much a vested interest in the springs as has the locality; the waters are not a parochial but a national matter. To obtain the greatest possible value from the springs, not only must they be fitted with rough-and-ready bathing facilities to meet the not too exiguous needs of local bathers, but they must be made so attractive that visitors from outside the country must be drawn to them in ever-increasing numbers.

I think we may assume that at a very moderate estimate every tourist or invalid bather attracted to these shores spends £50 in the colony in hotel expenses, travelling-expenses, bath fees, &c. If by increased attractions we can draw a thousand extra of these visitors a year, we have the interest on a million pounds annually spent in the country. To attract these visitors we must make one spa thoroughly up to date, both as regards baths, amusements, and sanitation. The enormous expense that this involves precludes the possibility of developing many places simultaneously. How enormous this expense must be will readily be appreciated when we come to consider the necessities of a first-class watering-place. In the first place the baths must not only be places where one can bathe in mineral waters, but they must be fitted with the expensive apparatus of modern balneological methods; and there must be not only decent comfort, but a certain amount of luxury. If these things are lacking there are plenty of other places that possess both and invite the visitor. Then, in a town claiming to be a health resort, and which is liable to sudden influxions of large numbers of people, not only must all sanitary arrangements be above suspicion, but they must be so elastic in working as to be capable of meeting sudden and great demands. Finally, the amusements of visitors must be undertaken on a fairly extensive scale. From these considerations it will be seen that while it is only right and proper that every locality containing a thermal spring should have that spring so far developed as to meet its local needs, yet that some one spot should be selected for complete development. I would advise the selection of Rotorua as that spot, because, in the first place, it possesses a splendid mineral-water supply which in quality is almost unique and in quantity is practically inexhaustible; it has a bracing climate and plenty of bright sunshine; it has already a wide reputation; and, lastly, it is readily accessible by rail.

Then again, there are certain springs which, either from the superlative excellence of their waters or from their geographical position, require developing on a more extensive scale than the average. Such places would be Te Aroha for its drinking-waters, and Hanmer to cater for the needs of those invalids in the south unable to undertake the long journey to Rotorua. These would require the expenditure of a fair amount of money on their upkeep, but would not require the same lavish expenditure as a place designedly run to attract not only local invalids but visitors from oversea.

Lastly, there are springs which, either from their difficulty of access or from their being merely duplications of those at already "developed" watering-places, must be relegated to the third place. These, at a moderate expense, will serve local needs, and will also serve as pleasure baths for the tourist, but they cannot expect to attract the invalid from a distance. As population increases and traffic lines are developed, many of these third-class spas will necessarily and naturally advance to the position of second or even first-class watering-places. In the meantime, *festina lente*.

In the first- and second-class places, where invalids are catered for, skilled medical attendance must always be available; in third-class spas this—though, of course, desirable—is not essential.

For some months after my arrival in the colony I was engaged in a general survey of the more important thermal districts, including Waiotapu, Wairakei, Orakeikorako, Taupo, Tokaanu, Oko-

roire, Te Aroha, Helensville, Morere, and Hanmer, and a more close investigation of the mineral springs of the Rotorua district. To this latter area I confined my close attention, after having come to the conclusion that here must be centred our chief activities.

The town of Rotorua was well laid out originally, but the far-seeing views of the founders have been too widely departed from. The broad straight streets suggest boundless possibilities which have never been realised. Electric cables, too much in evidence, obtrude on the eye, and beauty has been too much sacrificed to utility. Situated in a pumice plain, Rotorua should be an oasis, a garden city; charming restful surroundings are absolutely essential to a successful health resort. Trees have already been planted in the streets, but much more remains to be done. Owing to the magnificent breadth of the streets, there is ample room for beds of turf and flowers, evergreen shrubs, and fountains, all of which will tend to remove the glare and dust inseparable from a white pumice soil. To prevent the further erection of unsightly buildings, I would suggest that the plans of every new building should be submitted to the authorities before erection. The same authorities should have the power of ordering the alteration or removal of any specially unsightly existing structure.

Much, too, might be done towards brightening up the town by the judicious use of the paint-pot. Hitherto the fear of sulphur-fumes has led to the universal adoption of ochres and dull-browns, but if proper colours are chosen and zinc foundations used instead of lead the brightest tints may be employed. What a transformation may be wrought in this manner may be at once seen on comparing the present aspect of the baths and surrounding structures in their recent gay attire with the dull and sombre aspect they formerly presented. With a view to ascertaining which colours will stand and which will not, I have had experiments made, exposing a variety of pigments in situations where they will be exposed in varying degree to sulphur-fumes, wind, rain, and sun, to open-air and to indoor conditions, and I hope that the experience thus gained will prove invaluable in the future.

Nature of the Waters.

While amongst the countless springs arising in the Rotorua district there are, as might be expected, considerable numbers of varieties, and although it is no uncommon thing to observe two springs of almost diametrically opposite chemical properties arising side by side, yet there are certain features common to all.

In the first place, all the mineral springs in the district are hot, and where at times there may appear to be exceptions to the rule it will always be found that the coolness of the water is due either to admixture with fresh water or to evaporation in a basin comparatively large and fed only by a small spring. Without exception, too, the waters contain in solution either sulphuretted hydrogen, sulphurous acid, or both gases. Another invariable ingredient is silica, either in the form of silica, silicic acid, or a combination of that acid with various bases. This is a special characteristic of the waters of geyser regions, and is noticeable in Iceland and in the Yellowstone Park, U.S.A. To this silica is due the formation of those wonderful terraces for which New Zealand has long been famous. The hot water as it cools and concentrates, being no longer able to keep in solution its dissolved salts, these are deposited in layers, either horizontal and delicately rippled or in stalactite masses, the colour varying generally from white through every shade of grey to pink, according to the nature of the metals present with the silica. The waters, which may therefore be classed under the heading of sulphurous siliceous thermal waters, may be roughly divided into two main groups—acid and alkaline—with various subdivisions, and it is to the close juxtaposition of these entirely unlike waters that Rotorua owes its unique importance.

Group I.—The Acid Sulphurous Waters.

The distinguishing characteristic of these waters is the presence of free hydrochloric acid, free sulphuric acid, or both, in considerable quantity. In addition, they contain a large amount of alum, sulphate of soda, and iron-oxides, and in the somewhat cumbersome nomenclature of modern science would be classed as acid sulphurous sulphated siliceous waters, a type which does not exist in Europe, though found in the Yellowstone Park, U.S.A., and in Tuscarora, Canada.

Such waters are more suitable for external than for internal use, and for baths of what are known as the "simple immersion" kind they are especially valuable.

In addition to the therapeutic action which they exert in common with all other thermal baths, these waters possess a very powerful rubefacient action in virtue of the free acids they contain. By rapidly withdrawing large quantities of blood to the skin over the whole surface of the body, they profoundly modify the circulation, relieving congestion of internal organs and inflamed joints and nerves, easing pain and stiffness, resolving exudations, and promoting glandular activity. They act, in fact, in medical parlance, as powerful alteratives.

Besides their use as baths, some of these waters, more especially those containing a large proportion of alum, have been used with great success as astringents, especially as gargles in cases of relaxed and congested throat. The Egg-pot, a small but powerful spring near the Postmaster Baths, has long had a reputation for this purpose.

The best-known examples of the acid waters are the springs supplying the Priest and Postmaster Baths.

Class 1.—The "Priest" Water.

This spring percolates through a layer of hot pumice a few feet beneath the surface of the ground, and flows into the lake. The water has a greenish tinge, a very acid taste, an odour of sulphuretted-hydrogen and sulphurous-acid gases, and issues from the earth at a temperature of from 98° Fahr. to 110° Fahr. The total output it is impossible to estimate, on account of the numerous sources of leakage, but it is very large.

The Postmaster.—This spring bears a very close resemblance to the Priest, both in its situation and in its chemical properties, and differs only in containing an even larger proportion of free sulphuric and hydrochloric acids. It may, in fact, be looked upon as a stronger Priest water. It issues from the ground at a temperature varying from 98° Fahr. to 110° Fahr., and the total outflow is about the same as, or rather less than, the Priest spring.

The above springs are typical examples of acid, sulphurous thermal water, and form a pale-green solution, perfectly clear, except that on standing exposed to the air there is a tendency to the precipitation of flocculent sulphur.

Class 2.

There is another class of acid water, constituting a connecting-link between the foregoing and the hot mud-springs—that is to say, an acid water containing a considerable and varying amount of mineral mud in suspension. Such a spring is the Coffee-pot—a spring which it is hard to know whether to class under the head of mud or water, and the Cameron Spring arising a few yards from it. These waters, while owing their virtues partly to the salts and free acids in solution, act still more powerfully from the amount of mineral mud in suspension. They had a great reputation among the Maoris, and have fallen into an altogether undeserved neglect. It is hoped that when the new buildings are erected, increased use will be made of them for immersion baths.

These springs find their way through a thick stratum of mineral mud, which generally reaches to the surface of the ground, but may be entirely overlaid by a thick rocky crust of silica. As a rule they are also characterized by a very large evolution of gas, chiefly sulphuretted hydrogen and sulphurous acid, with a certain amount of carbonic acid, while they differ from the Priest water in the small quantity of alum in solution.

GROUP II.—THE ALKALINE SULPHUROUS WATERS.

We have seen that the acid waters are without parallel in Europe, and possess certain unique advantages for external use. The alkaline waters represent a type common to many of the most famous spas of Europe, and are suitable both for bathing and drinking. They differ from the majority of European waters in being more siliceous.

These waters are characterized by their very high temperature (180° Fahr. to boiling-point), perfect clearness, and soft emollient feel. As a rule they contain somewhat less sulphuretted hydrogen than the acid waters. Springing as they do from greater depths than the acid waters this is only what might be anticipated, as the gas is believed to be formed by the reduction of the sulphates of the alkaline earths by organic matter under the influence of pressure and heat. Seen in bulk, in a perfectly fresh condition, they present every gradation of colour between a faint blue and a delicate green, but on standing exposed to the air for some time the water is apt to become opalescent as a result of oxidation.

Used for bathing purposes these waters possess certain medical attributes which may be considerably modified by the method of bathing employed. And herein lies their great utility. Taken as simple immersion baths about the body-temperature they act as nervous sedatives, an effect greatly increased by the action of the sulphuretted hydrogen present. Prolonging the immersion, the action of the alkaline salts and the dissolved gases removes the greasy secretions and dead cells of the skin, at the same time flushing it with blood, while the silicates in the water exert a bland emollient action. Hence the value of these waters in certain forms of skin-disease. But it is for douche purposes that these waters are most of all valuable, more especially for that combination of douching and massage known as Aix massage. For this the bland nature of the water, combined with an almost slippery feel, a quality permitting the masseur's hands to glide easily over the bather's skin, and which is really due to a soapy material formed by the action of the alkaline water on the sebaceous secretions of the skin, renders the alkaline waters particularly suitable. Doubtless, too, the siliceous nature of the water increases this effect. At Aix-les-Bains the same quality appears to be due to a low form of vegetable growth in the water called glairine.

For internal administration the alkaline sulphurous waters have valuable properties, and also certain drawbacks, the most serious of the latter being their extremely nauseous taste. Happily, however, if the water is taken at first in small doses, which are gradually increased from day to day, the distaste not only steadily lessens but is often replaced by a positive enjoyment. The water should be taken as fresh and as hot as possible, sipped rather than gulped down, and should be taken on an empty stomach either before meals or in the cooling-room after or before a bath, according to the special effect desired. Thus taken before meals it cleanses the stomach, neutralises acidity, and stimulates the flow of gastric juice in virtue of its alkalinity. In addition, the sulphides, sulphates, and chlorides in solution exert a specific influence on the digestive glands, more especially stimulating the liver, so that the water relieves engorgement of the liver, hæmorrhoids, and, indirectly, constipation. At the same time the amount of iron present, though small, is sufficient to exert a distinctly tonic influence. There remains one important ingredient whose action must be regarded as still open to question—the silica. What therapeutic action, if any, the silicates exert is still a moot point, and my own experience in their use has been hardly long enough for me to venture a positive opinion.

It will be seen from the above that the alkaline sulphurous waters—such as the Rachel—are fairly potent medicines, and not to be taken in indiscriminate quantities without medical advice. More especially patients with greatly enfeebled digestion, profound anæmia, or persons suffering from functional disturbances of the heart should avoid their internal use.

One other application of these waters remains to be considered—their use, in the form of vapour, for inhalation and for vapour baths. At present no facilities exist for inhaling the vapour, but in the new baths I hope to see installed a complete inhalatorium. By increasing the mucous secretions, relaxing the respiratory tissues, and softening and desquamating the epithelium, inhala-

tion of these vapours would be distinctly beneficial in certain cases of chronic bronchitis and asthma.

While on the subject of inhalation it may be remarked that a good deal of involuntary inhalation goes on during a bath, especially when, as in the old form of baths, these are built directly over the source. The amount of sulphuretted hydrogen that bubbles up through the water in the Priest and Postmaster Baths is very considerable, and is largely responsible for the not infrequent cases of fainting in those baths. While not without its use as a skin-stimulant in the water, and for its action on the nervous system when inhaled, the good is so much more than counterbalanced by the evil that it would be better in all future baths not to build them over the springs, but always to lead the waters to them. The carbonic-acid gas which is present in several of the springs is hardly in sufficient quantity to have any marked therapeutic or toxic effect.

Vapour baths in which the body or part of the body is immersed in the steam arising from the mineral water, form a part of the armamentarium of nearly every spa in Europe, and ample provision for them has been made in the designs for the new bath buildings. But, while at present deficient in this respect, Rotorua possesses a "sulphur-vapour bath" which is believed to be unique. From a hot sulphur cavern immediately below the floor of the Blue Bath, steam and hot fumes, principally sulphur-dioxide, in a very concentrated form are led into a vapour "cabinet" of the ordinary type, in which the patient sits immersed, with his head projecting through an aperture. It is hardly possible to exaggerate the value of this bath in certain cases. While possessing all the properties of an ordinary vapour bath, the sulphurous fumes of themselves have an intensely stimulating effect on the skin; while, in addition, sulphur in the finest possible powder is deposited on the whole surface of the body. Under such a combination of circumstances quite an appreciable amount of sulphur is absorbed into the system, while at the same time all the effects mentioned before as attributable to immersion in Priest water are brought about.

Source of the Waters.

The appearance of an acid and an alkaline spring alongside flashes at once across the mind the inevitable query "Why?" How is it that two such antagonistic waters can outflow so closely together without mixing and neutralising one another? Evidently their sources, or at any rate one of their sources, must be far distant from their outlet. Very deep vertical or sinuous fissures in the earth's crust might account for the phenomenon, or one vertical shaft penetrating a horizontal and superficial water-bearing stratum. A close examination of a large number of springs inclined me to the latter opinion.

The foreshore of Lake Rotorua for more than a mile is riddled with acid springs, which seem, so to speak, to ooze from the surface pumice. By digging down a few feet in almost any part of this area one strikes a layer of acid sulphurous water closely resembling the Priest water. It is significant, too, that the temperature of the Priest Baths is materially lowered by a heavy rainfall. The alkaline waters in this area, on the other hand, are ejected with a certain amount of force from deep shafts, whose walls are lined with a silicate deposit soft under the water, of stony hardness where exposed and dry. It is impossible to measure the depth of these shafts, as their walls are not vertical, but they are certainly of considerable depth—the Rachel Spring, for instance, has been sounded to a depth of 150 ft. There is a close resemblance, both in the nature of the outlet-shaft and in the character of the water, between these springs and the geysers of Whakarewarewa; and even the quietest and most placid pools—such as the Rachel—will exhibit geyser action if the pressure on them is suddenly lowered, as by rapidly running off a large quantity of water.

The physical configuration of the springs, then, would point to the supposition that the Priest water is a superficial layer separated from a deeper level of alkaline water by some impervious stratum, pierced here and there by vertical shafts which allow the alkaline water, under a considerable degree of pressure, to reach the surface. To test the truth of this theory shafts were sunk in various parts of the Sanatorium grounds, both in sulphur-beds, where one might expect to obtain hot water, and in apparently sound places overgrown with trees 30 ft. high. In all cases hot, acid, sulphurous water was obtained at a distance varying from 5 ft. to 12 ft. below the surface. Certain strata, more especially a black-cinter layer, contained water in larger quantities and higher temperatures than others, the thermometer registering anything from 110° Fahr. to 160° Fahr. An analysis of one of these "artificial springs" will be seen below under heading A. On digging through the floor of spring A we came upon a dense stratum of white clay some 12 ft. thick, and boring through this with a 6 in. iron pipe we came on a plentiful supply of a neutral water, richer in chlorides, of a temperature of 187° Fahr., and altogether more approximating in character to Rachel water (analysis B).

Analysis, in Grains per Gallon.

	A.	B.
Silica	16·80	16·80
Alumina	20·36	4·10
Iron-oxide	1·10	0·15
Lime	0·56	0·56
Magnesia	0·61	0·20
Soda	2·46	13·33
Potash	0·40	0·80
Chloride	3·55	14·41
Sulphuric acid	57·40	12·60
Total	103·24	62·95
Sulphuretted hydrogen	6·20	2·98
Acidity, calculated as sulphuric acid	11·31	Neutral.

Spring B bears a close analogy with the Spout Bath at Whakarewarewa, which is also a nearly neutral spring.

Bath Buildings.

In regard to the baths, I have reluctantly to report that most of them are structurally unsound, not only are they not up to modern requirements, but some of them, the Pavilion Bath more especially, are in an advanced state of decay. In addition, the Priest and Postmaster Baths are built over the springs, which is not only an uncleanly arrangement, but has also the disadvantage that bathers are apt to be overcome by the fumes evolved from the springs.

Appreciating the fact that the building of new baths was a large question, involving much thought and a great expenditure, I advised that temporary measures should be taken to improve the comfort and attractiveness of the old baths. With this idea the Pavilion and Blue Baths were painted in light and attractive colours, and such minor structural repairs done as were absolutely necessary. In addition, in order to be enabled to use those modern douche methods for which the Rotorua waters are so admirably suited, I advised the erection of a temporary building to house the Aix Massage Baths. This was completed and fitted up at a cost of under £400, and the baths have already proved of enormous utility since their installation in February. The hot water is delivered under a pressure of 40 lb. to the square inch. Water from the town main is used to drive a Pelton wheel, which pumps hot and cold mineral water into cylinders, in which an elastic air-pressure is maintained. Thence the waters pass through a mixer into the hoses of the douches under a pressure of from 30 lb. to 40 lb. to the square inch. By means of the mixer both the temperature and pressure of the water can be varied as desired. By an ingenious arrangement suggested by Mr. White, our electrical engineer, the whole pumping machinery has been made to run automatically, so that no engineer is required to watch it, an arrangement the economy of which it is unnecessary for me to dilate on. I have to acknowledge my great indebtedness to Mr. White for his kind assistance in the designing and perfecting of this machinery. To insure cleanliness, the walls of the bath-rooms were lined with plate glass. In addition to various douches and needle baths, the bath-rooms have been fitted with apparatus for medical gymnastics. I know of no similarly equipped building which has been completed at anything like so low a figure. The whole is in charge of a masseur and masseuse, and I consider myself fortunate in obtaining the services of two such capable and efficient manipulators.

In December a little-used part of the Pavilion Baths was set apart for mud baths, the material being obtained from hot springs in the Sanatorium grounds. These baths have been of incalculable benefit to many sufferers who failed to obtain relief from the use of the waters alone. On the male side they have been extensively patronised, while on the female side they have been comparatively little used. This remark applies, though in less degree, to the massage baths.

An alarm of fire drew my attention to the desirability of taking greater precautions where such large wooden buildings were crowded together, and not only were fire-buckets placed at central and conspicuous points and kept full, but all the baths, the Sanatorium, and the medical residence were fitted with Rex chemical fire-extinguishers.

For the sake of cleanliness, all the couches in the various waiting-rooms have been covered with holland coverings, which can be taken off and washed at regular intervals. With the same idea summer washable uniforms, white with blue facings, have been issued. These are as smart as they are cleanly.

While compelled to find fault with the immersion baths and with the buildings in which they are situated, I have nothing but praise for the excellent and popular hot swimming-baths, which I think will meet all requirements for many years to come.

Realising, then, that the Pavilion Baths were out of date from a balneological point of view, and were also decaying and structurally unsound, I set about the task of designing new bath buildings. I felt that to build baths to meet only our present needs was not sufficient. To judge by the past the number of bathers increases year by year, and I feel sure that with better accommodation and better appliances the number would even more rapidly increase. My original design, which I forwarded some time ago to Wellington, has been so improved by the patient labour of the architect at work ever since upon it that I feel it is a building not only eminently suited to its purpose, but one of which any health-resort in Europe might be proud. With such baths and with such splendid waters as we possess in Rotorua, we might confidently anticipate an enormous increase in the number of visitors. I have had the opportunity of examining a large number of the most celebrated bath buildings of Europe, of noting where they excelled and where they seemed to me defective, and I could not help being struck by the fact that it by no means followed that the most expensive and pretentious buildings were the most comfortable to the bathers. In the plans I have aimed at a building which shall be (1) suitable for all ordinary balneological purposes; (2) pleasing in appearance; (3) replete with solid comfort for the bather; (4) as economical as is consistent with first-class workmanship and material.

It is the custom to build such a structure of stone and marble, materials which lend themselves so admirably to a classic style, but as we are obliged for many reasons to make great use of wood, I felt it better to frankly acknowledge the nature of the material, and not try and make it look like stone by building in a pseudo-classic style. With this end in view, I adopted in my plan the old English style of architecture, modified to meet modern colonial requirements. Such a style, while lacking, perhaps, the dignity of the classic Greek or Roman, is eminently comfortable and homely, and I venture to think it will appeal more sympathetically to the eye of English wanderer and colonial settler alike than would the architecture of an alien race.

In the main scheme of the building I have kept certain points always before me. In the first place, it was essential that the building should be equally suitable for summer and winter use, for I look forward to the time when the Rotorua season will extend throughout the winter. Then came the consideration that we must look forward to the future, and not merely build to satisfy the requirements of the present. Next, the complete separation and duplication of the male and female halves of the establishment. This is an arrangement which has not been carried out in

some of the most famous baths of Europe, but it is one which removes many difficulties of administration, and adds considerably to the comfort of bathers. Then, as far as possible, all stairs are avoided, and every facility is afforded for crippled bathers to reach their baths with a minimum of labour: it will be possible for a patient to leave his bedside in a bath chair, and be wheeled straight to the side of his bath. Every bather will have a private bath, fresh water, and a private dressing-room. The cooling-rooms will be large, lofty, light, well ventilated, and free from draught, so that the risks of catching a chill after a bath may be reduced to a minimum. The corridors will be broad, light, and airy, and paved with tiles; while, to minimise draught, swing doors are provided in the cross-passages. With a multitude of pipes, and abundance of hot acid vapours, there is sure to be, at frequent intervals, "something wrong with the pipes." This is inevitable and must be faced. To prevent incessant pulling-up of floors, I have arranged the whole ground floor on arches 6 ft. 6 in. above the ground-level, and through these arches run all pipes, electric wires, &c. This arrangement also adds additional height to a building which must necessarily be somewhat long and low. To gain a further appearance of height, a terrace lawn runs along the whole front of the building.

In regard to material, while it would, of course, be cheaper to build in timber, it is absolutely essential that the foundations and lower sections of the walls should be of a more stable material, on account of the amount of water and vapour always present. Timber walls are sure to warp to a certain extent however well the material may be seasoned; and it is practically impossible to affix the necessary tiles to a wooden backing. Although it would be possible to erect the superstructure in wood, I should strongly advise the use of a more permanent material. The spaces between the "half-timbering" could be filled with concrete blocks, which, while adding vastly to the appearance of the building, would also render it practically fireproof. In addition, it would be warmer in winter and cooler in summer; and from the manner in which the wall is split up into segments there would be a minimum risk of damage from earthquake-shocks. Excellent concrete can be made locally from the pumice at a very cheap rate.

Description of proposed New Baths.

To return now to the actual details of the building. We approach either by a gently rising crescentic carriage-road from the Queen's Drive, or by a more direct footpath and flight of steps from the grounds. Directly facing us is the building some 320 ft. long—apparently two-storied—it is in reality largely of only one floor. The building runs due north and south and faces west, so that every portion, except the short south aspect, sees the sun at some time in the day. In the centre, over the entrance-hall, the gabled roof contains two stories above the ground floor. At the intersection of the central roofs is placed an octagonal tower, forming a lantern light to the central hall.

An arrangement of double doors serves to prevent the westerly winds blowing straight into the building, and shuts out draught. The central hall rises straight to the roof, showing the open timbers. The floor is tesselated, and in the centre is a fountain, while palms and ferns lend refreshing green. Straight ahead is an arched opening into the east corridor, while on either side a broad flight of stairs leads to the first story. Through the arch we get a fine vista of stained-glass window. A gallery leads round the hall to a pretty room over the entrance-porch, and provides, amongst other things, room for an orchestra.

On your right hand as you enter the hall are the doctor's consulting-room, with attached waiting-room and dressing-rooms for patients, and a clerk's office. On the left is the ticket-office, where you can book your bath for a certain specified hour, weeks in advance if you like, with the certainty that it will be reserved for you. Beyond this is a sort of bar, where you may obtain a glass of any of the recognised mineral waters of the colony.

On each side from the central hall open the corridors leading to the north and south halves of the building, the gentlemen's and ladies' sides respectively. As these are almost in duplicate, it will be sufficient to describe one half only, merely noting in passing such slight differences as have been found necessary to be made between the two wings. Let us turn to the left into the male side. Passing through swing doors we enter a long corridor 10 ft. broad, lighted on each side by windows near the ceiling, opening inwards. The red tiles of the floor look clean and inviting, and contrast with the clean light walls. At regular intervals along the wall on our left are a large number of doors—these lead to the private deep and shallow baths; on the right hand other doors lead to the douche-massage establishment. We will visit one shallow and one deep bath as types of the rest.

Shallow Bath.

Opening a door on our left we find ourselves in a small dressing-room 10 ft. by 7 ft. It contains a couch, a chair, a dressing-table, mirror, and other accessories. The floor is covered with a soft rug, the walls painted a light cream, while a dado, stencilled in light blue, proclaims the nationality of the baths in a pattern of fern and tea-tree. The ceiling is 20 ft. above the floor, to prevent stuffiness and favour ventilation. With the same idea, and also to prevent any well-like appearance in such small lofty rooms, the dividing-wall between the dressing-rooms is only carried up to a height of 12 ft., leaving a clear space of 8 ft. to the ceiling, so that the dressing-rooms are in effect cubicles. This is a modification of the plan, which has been found to work well in some of the European baths.

In the opposite wall of the room, but so placed as not to be opposite the entrance from the passage, is a door leading into the bath-room. Entering we find ourselves in a room closely similar in size and shape to the room we have left, and cubicled on the same plan. The floor is of red tiles, with a blue-black-edging pattern; the walls, to a height of 5 ft., are lined with tiles—white, with a border of pale green at the top, and finished off with a tile moulding of dark green. Let into the floor is the bath, the faintly green hot water looking all the more inviting from the clean white and

green tiles which enclose it. The bath is built of concrete 8 in. thick; this is lined with tiles set in cement of precisely similar pattern to those lining the walls of the room. The bather descends a couple of steps into a shallow bath of comfortable size to lie or sit in, convenient handrails assisting the crippled or the feeble. The water enters by an opening under the lower step, and overflows at the foot of the bath. It will be noticed that every angle and corner is rounded off by a convex or concave tile moulding. The object of this is partly to do away with any dirt-collecting crevices, and partly to diminish the risk of a fall against a sharp corner. The same arrangement of rounded corners is adopted in the massage rooms and all the tiled rooms of the building, so that a minute or two with the hose will remove every particle of dirt. Wet tiles being somewhat slippery objects, the steps leading into the bath are formed of roughened "silicon treads." Special electrical arrangements give warning when the prescribed time has been spent in the water, while an electric bell, well within reach, will summon an attendant with hot towels, or with restoratives should the bather feel faint. A cold shower or douche will probably conclude the bath, or a pack in hot towels may follow on the couch in the dressing-room. In either case the bather will pass for a time into the cooling-room, where he will find all the comforts of a club reading or smoking room, before he ventures into the open air. So much for a shallow bath.

Deep Bath.

A deep bath is very similar, but differs in a few structural details. To begin with, the bath is deeper—nearly 5 ft. It is also much larger in all dimensions, so that a bather can move all his limbs freely under water, and, if necessary, apply a hot douche to some affected part under the water. The bath-room, while precisely similar in appearance and construction to the last, is twice the size. To economize time and space two dressing-rooms open into it, so that, while one bather is dressing, the water can be quickly run off, the bath refilled, and another bather treated without loss of time or undue hurrying of the first bather. It was the want of this second dressing-room which we found so inconvenient in some of the baths at Home.

Another peculiarity of the deep bath, and one which I feel will be a great improvement, is the system of overflow from the bottom. There is some difficulty in maintaining a deep bath at an exactly equable heat, and it is necessary in medicinal baths that the temperature prescribed should be accurately adhered to. As the water cools it sinks to the bottom of the bath, with the result that at the end of ten minutes there is sure to be a layer of cool water at the bottom of the bath. With the overflow in the usual position, even running in a constant supply of hot water will not get over the difficulty, but by causing the bath to overflow from the bottom the cold layer is constantly drained off and the temperature of the bath maintained.

We have now visited a deep and shallow bath—these constitute "immersion baths," the commonest and simplest variety of bath, and fifty-seven bathers can be accommodated in these alone, at any given moment.

Massage-douche Rooms.

Let us now visit the massage and douche establishment.

The principal feature here is a large central room, with tiled walls and floor, on to which open the masseur's dressing-room, four bathers' dressing-rooms, a hot-air and a hot-vapour room.

The dressing-rooms are similar to those we have already visited, and need no further description. A patient entering his room hands his prescription to the attendant, who then proceeds to accurately carry it out. After undressing, the patient passes into the hot-air or hot-vapour room, or both, as prescribed, and thence into the massage room. Both the former rooms are comparatively small, and built much on the principle of the refrigerator, with non-conducting walls. The vapour room is heated principally by showers of hot water falling on to a heated plate. The hot-air room is, I believe, unique. Electrical heating is adopted throughout by means of rheostats, fixed like a dado round the lower part of walls. One, two, three, or four of these sections can be switched on or off at will, thereby regulating the temperature of the room. In one corner is a further device, whereby incandescent heat is utilised, and an electric-light bath can be given if ordered.

The massage room is worked by two skilled masseurs. Here the bather may receive Aix massage—that is, massage by either one or two operators while powerful douches play on the affected part; or it may be the Scotch douche, alternate jets of hot and cold water under high pressure; or the needle bath, the spinal douche, the lumbar douche, the ascending douche, the shower, or a combination of all or any of these. At one end of the room is a sort of switchboard, from which the operator can control all the douches, turn them on and off, and regulate their temperature and their pressure.

Mixers.

A word in passing as to how this very necessary regulation of temperature and pressure is brought about. The water from the Rachel Spring, which is the water used for high-pressure douches, is collected by a siphon tube and divided into two portions—one is preserved hot, and the other is led into cooling-tanks. The two are then forced by hydraulic pressure into closed iron cylinders, where they are subjected to an elastic air-pressure of some two or three atmospheres. From these cylinders the hot and cold mains supply the baths, each main being under the same pressure. From the mains branch pipes supply the various douches, but before entering a douche the hot and cold waters enter a mixer. This is a strong metal sphere containing a special device for mixing the waters. Into it are led the hot and cold pipes, and from it an exit-pipe leads to the douche. By means of screw-down cocks the amount of entering hot and cold water can be regulated at will, while the temperature of the resulting mixture is recorded by a thermometer placed in the exit-tube. In this way the temperature of a douche can be accurately regulated. The mixers are prominent objects on the walls of all bath-rooms where douches are provided.

Cooling-room.

The cooling-room, a large and handsome apartment, and one of the principal features of the building, is the spot to which eventually all bathers converge, no matter what kind of bath they may have taken. Here one sits and cools down before facing the colder air outside. Glass screens shut off all draught, while in winter incandescent electric fires suffuse the room with a comfortable glow. Ventilators in the ceiling remove fouled air, while the incoming fresh air is warmed by its passage over the electric stove. Comfortable arm-chairs and couches are dotted about the room, while tables are covered with papers and magazines. In sheltered corners are specially cosy nooks for those chilly mortals more than usually prone to catch cold, while others may prefer a seat at the great bay-window overlooking the garden.

Inhalation Room.

On the first floor of the central block is the inhalation room, where patients suffering from bronchitis, asthma, laryngitis, and so forth, may sit and inhale "nebulized" Rachel water either pure or impregnated with various medicaments, the commonest of which is pine-oil. Round the wall are little boxes, much like the compartments placed for the public in telegraph offices. Taking a chair at one of these, you may receive a special spray to the throat, nose, face, &c., as required.

Electric Department.

Close to the inhalation room is the electric department. Here one may obtain almost any prescribed form of electrical treatment. Before long I expect this will be a very busy corner of the establishment.

Mud Baths.

Descending a short flight of steps at the end of the main corridor, we come to the mud baths. To save labour and expense of manipulation, these have been built on the ground-level, so that the mud baths can be wheeled into position on tram-lines.

The dressing-rooms are similar to those we have already visited, but each bath-room contains two baths. One of these is the mud bath proper. This consists of a wooden bath on wheels, which can be filled outside the building and run through a small door in the outer wall into the bath-room. The mud may be of varying degrees of consistency as prescribed. After immersion in the mud bath the bather steps at once into a bath of clear hot water alongside, the cleansing process being completed by a shower-bath.

Such is a complete mud bath, but frequently a partial bath is ordered, one limb or part of a limb only being immersed. For this purpose special arm and leg baths are made, or the mud may be used in the form of a poultice.

Sun Baths.

The floor above the mud baths is used for the sun baths, being divided longitudinally into a male and female side. Here, under the care of an attendant, the bather lies exposed to the full sunlight. Round his head is a cool wet towel, and various precautions are adopted to obviate risk of sunstroke. After the bath a cool shower is generally taken.

Caretaker's Room.

The corresponding suite of rooms in the south wing cannot, of course, be used for sun baths, and are occupied by the caretaker.

Returning now to the central hall we pass through the arch beneath the stairs to the east wing. A short broad passage ends in a very fine stained-glass window. On either side is a small waiting-room for the attendants, while beyond this are the "local vapour rooms."

Local Vapour Baths.

These contain cabinets filled with vapour of mineral water at varying temperatures. Here the whole body may be enveloped, leaving only the head outside, or merely a limb may be put in the cabinet.

Upper Story.

Passing up the broad staircase we arrive at a landing overlooking the centre hall, and opening on the one side on to a gallery round the hall, on the other side on to the first floor of the east wing. This consists of the inhalation room and two very fine and handsome rooms, where eventually I hope to see installed a complete Zander Institute. Above this is a similar floor, leaving abundant space for stores and for future developments.

Bathing Accommodation.

Omitting these further and as yet undeveloped parts of the building, the present portion will afford sufficient bathing accommodation for some time to come. We can give at any identical moment, allowing each bather a separate bath and a private dressing-room, 14 deep, 42 shallow, 12 mud, 4 electrical, 8 massage-douche, and 4 local vapour baths, making a total of 84 baths. Allowing one hour for the use of each bath—a very liberal allowance—and a twelve-hours working-day, we could accommodate over a thousand bathers a day. In addition, we could give 5 sun baths and 10 inhalations at a time. It would not be possible to say how many of these we could put through in a day, as sunlight cannot always be depended on, and the time taken by an inhalation varies, but it would certainly run into large figures. I have made a very conservative estimate of the work-capacity of the baths, and if pushed we could accommodate over a thousand bathers a day.

Mineral-water Supply.

To supply the baths I propose to draw the Rachel water straight from the spring, which lies some 120 yards to the south-west. The water will be delivered by an underground main under pressure of from two to three atmospheres, and will be used principally for douche purposes. Some 250 yards to the north-west of the building is situated the spring of "Priest" water which we discovered by sinking a shaft, and which, after being surrounded with a wooden grating and a filter of twigs, was roofed over and covered again with earth, pumps being fixed above. This will be used to supply most of the immersion baths, shallow and deep, so that a "Priest" bath can be given without the disagreeable and dangerous accompaniment of sulphuretted-hydrogen fumes. This water will be supplied at a low pressure only, probably about half an atmosphere, and will be a great deal more difficult to manipulate than the Rachel, owing to its corrosive effects on metal.

Mud-supply.

The mud baths will be supplied from the pools and springs near the lake-shore, to the east of the building.

Bath-attendants.

To staff these baths properly will require a considerable number of attendants. These, as far as possible, must be possessed of a certain amount of technical skill and previous experience, while in the case of masseurs and doucheurs this is absolutely essential.

Engineer.

It will also be found advisable to retain an engineer, whose sole duty will be to attend to the machinery and pipes of the baths, and who will have a responsible and by no means sinecure position.

ACCESS TO ROTORUA.

Rotorua is most easily reached by train from Auckland, but to get to it from Wellington entails a long and tiresome journey, the sea voyage being to many invalids a very serious obstacle. A great increase in the number of visitors may only naturally be expected when it is possible to get from Wellington by train.

AMUSEMENTS AND SCENIC ATTRACTIONS.

Finally, I would most strongly urge the necessity for conserving the natural beauties of the neighbourhood, and for providing amusement and relaxation for visitors. Geysers and mud volcanoes, hot springs and boiling lakes, intensely interesting and fascinating though they may be, are apt after a time to pall, and the visitor turns with relief to less awesome delights. Much has been done already, but there is more still to be done. No one who knows the difficulties that have had to be overcome can fail to admire the skill with which the gardener has converted a sterile wilderness into a beautiful garden, while the bowling and tennis lawns are really first class, and are well patronised. I would advocate the laying-out of really good golf-links, a site for which is readily available, as a measure that would be thoroughly appreciated.

Lastly, there remain the magnificent lakes stretching away for miles in a great chain, with virgin forests on their shores, full of beauty and wonder, haunted with ancient myth and tradition. The charms of Rotoiti should be better known and more accessible: and how few ever disturb the quiet beauties of Rotoma! Rotorua, though less beautiful, lies at our very doors, and I look forward to the day when white-sailed yachts shall be counted by the dozen, and the Maori war-canoe a familiar sight. A good pier and promenade, and a sheltered harbour for boats, will be the first steps towards drawing the attention of Rotorua to the asset she possesses in her lake.

BATH RECEIPTS FOR THE YEAR.

Taken on the whole the bath receipts for the year ending the 31st March, 1903, have shown a marked increase on any former year. The receipts of the previous year were greatly increased by the influx of people caused by the Duke's visit, and it would not have been surprising if this year we had been unable to show quite such phenomenal returns. The drought too has prevented many visitors from Australia incurring the expense of a visit to Rotorua, and I would point out as a very important feature that the average number of visitors from Australia is very large indeed. In spite of all this, however, the bath receipts have still continued to rise, and show an increase over the phenomenal receipts of last year of no less than £350, a sure sign that the popularity and reputation of Rotorua are not ephemeral.

Increased bathing facilities and more advanced methods have, of course, necessitated an increase in the wages bill, but this has been more than compensated by the receipts and by the greater efficiency of treatment.

The following are the bath receipts for four years: 1899–1900, £988 7s.; 1900–1, £1,027 18s. 5d.; 1901–2, £1,522 0s. 4d.; 1902–3, £1,874 5s. 7d.

POTABLE MINERAL WATERS.

One of the new features has been the retailing of Te Aroha water at the baths at the nominal sum of 1d. per glass. This has met a long-felt want, as the weakest point about Rotorua is its comparative paucity in potable mineral water. The water is brought from Te Aroha in jars every two or three days, and arrives in perfectly fresh condition. It is too early yet to speak with certainty in this matter, but I believe that the Department will at any rate not lose financially over the transaction, while the benefits from other points of view are indisputable.

I trust that later on we shall be able to supply an iron water, an iodine water, and a purgative water of native origin, in the same way as the Te Aroha water.

LAUNDRY.

In wet weather it is sometimes impossible to dry the towels sufficiently quickly to cope with the demand, although some 1,050 towels are in use. I would therefore suggest the desirability of erecting a drying-room in connection with the laundry.

SANATORIUM.

The Sanatorium has had a busy season, but, though large numbers of applicants for entrance have been turned away, the building has rarely been full. This is because of the great disproportion between male and female applicants. Double the number of male beds available could always be filled, while the number of beds allotted to women is generally in excess of the demand. This is the opposite to the general experience of similar institutions in England.

In September Miss Payne, the Matron of the Wellington Hospital, was appointed Matron of the Sanatorium, and two nurses were appointed under her instead of one as heretofore. As a consequence of these additions to the staff the patients obtain much more efficient nursing, and cases requiring massage and passive movements have been able to obtain the necessary treatment.

A very large number of the Sanatorium patients have passed through the hands of the masseur and masseuse at the Aix Baths, to their great benefit.

Electrical treatment is now being introduced into the Sanatorium to meet the special requirements of a large number of patients.

Greater scientific precision is now attained in the treatment of Sanatorium patients by giving a prescription to each, clearly stating the bath to be taken, the temperature of the bath, time of immersion, nature of the douches, &c.; and the attendants have instructions to only give a bath according to the prescription. This system not only prevents the indiscriminate and often injurious bathing formerly indulged in by the patients, who were free to take any bath at any temperature and as frequently as they liked, but also enables the doctor to insure his treatment being carried out and the Department to record the number of baths given.

It is hard to estimate the cost per head of patients at the Sanatorium; but, estimating on the same basis as last year, and including under the head of salaries that of the late Resident Medical Officer up to the time of his departure, and that of the House Surgeon for the months of February and March, but not of the Balneologist, whose functions are by no means confined to and therefore chargeable to the Sanatorium, it will be seen that the cost is a trifle less; this in spite of the increased nursing staff and the increased wages paid to domestic servants. It is, however, hardly a fair comparison. The following are the figures for the past three years: Daily average cost of patients per head—1901, 4s. 2½d.; 1902, 6s. 2½d.; 1903, 6s. 1¾d.

In February Dr. Kenny was transferred to Te Aroha, and Dr. Craig was appointed to the new post of House Surgeon and Assistant to the Balneologist. I cannot speak too highly of the way in which Dr. Craig has done his work, and his kindness and unremitting labours among the Maoris have resulted in a large increase both in the number of Natives applying for treatment and in the seriousness of the work attempted. Without the facilities offered by a regular hospital, several operations involving the use of anæsthetics have been successfully performed, and a vast amount of suffering alleviated. With only one doctor available as formerly, anæsthetics were practically impossible.

In this connection I would draw attention to the fact that the Sanatorium is not a suitable building for its present needs, and that what is required is a small general hospital with a Maori ward and out-patient department, the present Sanatorium reserved for free or almost free patients, and a hydropathic establishment or spa for patients able and willing to pay in full for treatment.

And here I would venture to point out that the free treatment of patients at the Sanatorium is not only an act of charity to deserving and necessitous persons, but a first-class advertisement of the Government baths. Every person that leaves the Sanatorium carries north, south, east, or west a living testimony to the efficacy or otherwise of the Rotorua treatment, and the more thorough and scientific that treatment the more likely is that testimony to be favourable.

The system of mixing paying and non-paying patients I consider very unsatisfactory, while the arrangements for seeing paying out-patients are altogether uncomfortable. There is no waiting-room provided, and patients paying half a guinea for a consultation have to wait their turn in a draughty passage huddled together with hospital out-patients.

The balneological side should be kept absolutely distinct and apart from the medical and surgical side; the two cannot be run together.

Suggestions.

To remedy this state of things, I would suggest one of two courses,—

(1.) Conversion of the present Sanatorium buildings into assembly-rooms, museum, reading-rooms, &c., and erection of a new Sanatorium. Or, as I think preferable,

(2.) (*a.*) Retention of the present Sanatorium building for free patients, making minor structural alterations;

(*b.*) Provision of a separate building for paying patients at higher fees than at present;

(*c.*) Construction of a small general hospital close at hand with a Maori ward;

(*d.*) Paying out-patients to be seen by the Balneologist at the new baths, instead of at the Sanatorium.

For reasons of economy the same staff would do for both (*a*) and (*c*), and possibly for (*b*) also.

Hydro.

To take clause (*b*) first: There is a large and increasing class of visitors to Rotorua who are really ill, and for whom no one pretends at present to cater. For such a class the provision of a sanatorium, which should be a hydro. run on modern lines, would fill a long-felt want. A rheumatic patient requires not only baths and ordinary medical comforts, but proper diet, the well-regulated routine of a scientifically devised establishment, and sometimes a certain amount of nursing. However ready he may be to pay for these necessaries, he is absolutely unable to obtain them. Fresh fruit, fresh vegetables, fresh fish are luxuries in Rotorua, and although I give to every one of my patients a diet-list suitable for his complaint, I know full well in my heart that this is more or less a farce, as he will be able to carry out the instructions in scarcely any existing house in Rotorua. In this connection I would point out that the question of diet has hitherto been largely ignored in the Government Sanatorium, and that patients there were provided with food which was often quite unsuitable for their complaint. I cannot insist too strongly on the necessity of abundance of fresh green vegetables in the dietary of a rheumatic patient.

Vegetable and Fruit Garden.

I would suggest that a large area of the best soil obtainable be laid down in cultivation of fruit and vegetables, with plenty of glass houses to insure a good winter supply. Such a garden would supply both the Sanatorium and the Hydro. all the year round.

Since writing the above I have received the Agent-General's report of the meeting of the International Congress on Hydrology, Climatology, and Geology, held at Grenoble, which he attended. I would call special attention to the fact that the general consensus of expert opinion was in favour of "closed" sanatoria—that is, establishments where patients live by rule and under close medical supervision. This is in effect what I propose in the matter of a hydro. At the same time, attention is drawn to the part played by "cheerful society, beautiful scenery, and rational amusement" in aiding a cure.

Site of the Hydro.

It is necessary that the Hydro. should be—

(1.) Near the baths.
(2.) On firm ground.

Hospital.

It is also advisable that the new Hospital should be—

(1.) On a main road—that accident cases need never be carried through the Sanatorium grounds.
(2.) Near the Sanatorium—to have the advantage of the same staff.

Should the plan of grouping the three buildings together be adopted, the only suitable spot—and it is one eminently suitable—is the piece of ground behind the Sanatorium buildings, including the site of the present medical residence, and an isolated corner of the Sanatorium grounds facing Hinemoa Street. In this area the buildings could be grouped together without crowding, the site is central, near the baths, would cost nothing, and the ground is solid and good.

The alternative plan would be to place the Hospital and Sanatorium on this site, and the Hydro. on the Pukeroa property.

Medical Residence.

The present medical residence is worm-eaten, and is no longer suited to its purpose, but a most excellent site is available close to the north wing of the new baths, though hidden from them by a belt of trees. As the duties of the Balneologist at the baths are already engrossing, and will become so more and more as the place becomes better known and more and more scientific apparatus is brought into play, it is necessary that he should reside as close as possible to the baths.

Utilisation of Existing Baths.

There remains the problem of the utilisation of the existing baths.

The swimming-baths, including the Duchess, the Blue Bath, the Ladies' Swimming-bath, should be retained chiefly for pleasure purposes, and they would always be in great demand. The Pavilion Baths, with some modern improvements, the Mud Baths, and the new Douche Baths in the "Temporary Buildings" should be reserved for the use of the Sanatorium patients.

It is very possible that the Rachel Spring may soon be taxed to its utmost to supply the new baths, in which case one of the swimming-baths might be converted into a cold fresh-water swimming-bath, for which there is a great want in summer, and water from the Blue Bath source might supply the douches for the Sanatorium baths. For the present, at any rate, I would recommend leaving the Postmaster Baths untouched.

Private Patients.

On the 14th November, 1902, I took over from the Resident Medical Officer the duty of attending to private patients. The receipts from this source, as will be seen from the figures for the last three years, have steadily increased. With the completion of the new baths, and the numerous and more complicated appliances at the disposal of modern physiological therapeutics, I confidently anticipate a very great increase under this heading. Out-patients fees for 1900–1, £412 3s.; 1901–2, £456 14s. 6d.; 1902–3, £589 10s.

In regard to matters concerning Rotorua more generally, I would point out the increase of population of the town during the year; the great success, from a commercial point of view, of the carnival, the installation of a public telephone system, and of an infectious diseases hospital.

SEWAGE.

In regard to the method of sewage-disposal, the earth-closet system at present in use, though far inferior to a proper water-carriage system, is by no means necessarily an insanitary one, and it is most efficiently carried out by the Town Council as far as it is in their power to do so; but there are certain special difficulties in the way of carrying it out thoroughly in Rotorua. In many parts of the town "earth" is so scarce that the closets are earth closets only in name. The silica crust crops up so near the surface that there is no earth available for sprinkling in the closets. This difficulty can be overcome by the use of ashes and carbolic powder, and if this were strictly enforced there would be no nuisance.

WATER-SUPPLY.

In regard to the water-supply, while it would be far better to obtain a purer source, I by no means take a pessimistic view of the present supply. A large part of London is supplied by the foul water of the Thames, which has been rendered innocuous by filtration. The Puarenga is, of course, infinitely cleaner than the Thames, and it should not be an expensive matter to construct pumice filters at the settling-tank, while the banks of the stream might be policed where it passes through Maori property. I offer this suggestion as an alternative should the larger scheme prove so expensive as to be impracticable, but it is, of course, a very inferior alternative.

GUIDE-BOOK.

I propose to write a handbook which shall give all possible information in regard to the mineral waters of New Zealand, which I trust will be of use not only to the general public but to medical men who may be desirous of sending patients to one of our numerous health resorts. Already a large number are thus sent from Home and from the various colonies, and I feel sure that as our bathing-appliances are improved and our spas become better known the number will steadily increase.

The chapter dealing with Rotorua is nearly finished. I hope that the section descriptive of the baths will need considerable alteration and revision within the next year or two, and that analyses of further springs will be added from year to year. In addition, many of the principal thermal centres of the North Island have been lightly touched on. A more thorough and scientific report of all these spas will follow as soon as possible.

In conclusion, I would express my sincere conviction that in her thermal springs New Zealand has a valuable asset, how valuable I think is scarcely yet realised, and to obtain even a fraction of the full value of this property the country must be prepared to spend, and at first to spend fairly freely. The money will be returned with heavy interest.

I have, &c.,
ARTHUR S. WOHLMANN,
Government Balneologist.

The Superintendent, Department of Tourist and Health Resorts, Wellington.

APPENDIX II.

REPORT OF THE RESIDENT MEDICAL OFFICER AT TE AROHA.

SIR,— Government Domain, Te Aroha, 30th May, 1903.

I have the honour to submit my annual report for the year ending the 31st March, 1903:—

1. WORKS COMPLETED DURING THE YEAR.

(a.) No. 4 Bath; warm plunge; for children (12 ft. long, 9 ft. 10 in. broad, 3 ft. deep; mean temperature, 86° Fahr.).—A new building, costing £104, freshly painted within and without, replaces the old one, and where everything before was dark, dingy, and dilapidated, everything now is bright, clean, and inviting. At one time this bath had a temperature of 92° Fahr., but this has fallen to 86°. Many children use this bath, especially on Saturdays, but I feel sure that it would be much more largely patronised if the bath was hotter. It would be an easy matter to secure this if we only had a larger supply of hot water to draw from. At present this bath receives its supply from two small springs situated immediately outside the bath-building, from which the water is conveyed in iron pipes coated with asbestos and bedded in concrete.

(b.) No. 6 Bath; warm plunge; for men only (16 ft. long, 14 ft. wide, 3 ft. 10 in. deep; mean temperature, 93° Fahr.).—The interior of this bath has been greatly improved by painting, which now makes it look clean and tidy. The only alteration I recommend here is to extend to the distance of about 3 ft. the partition which shuts off the cold shower, so as to prevent the splash from affecting a large portion of the floor of the room. (Estimated cost, 7s. 6d.)

(c.) No. 2 Bath; hot plunge; used by both sexes at different hours (20 ft. long, 7 ft. wide, 4 ft. deep; mean temperature, 102° Fahr.).—The concrete bath has been increased in size by the formation of a flight of steps leading down into it. The interior of the building has been made more roomy; all wooden linings have been renewed, and the whole building painted inside and out, making a very inviting bath. It is the hottest public bath in Te Aroha, and therefore at present the favourite. It is used for the cure of rheumatism and all allied ailments. This bath, like all other baths at Te Aroha, was originally constructed of wood, and had then a mean temperature of 112° Fahr., but since the wood has given place to concrete the temperature has fallen to 102° Fahr. For the treatment of most cases this temperature is sufficient. At present the only want that this bath is in need of is an extension of about 4 ft. to the partition which cuts off the splash from the cold shower. (Estimated cost, 10s.)

(d.) No. 1 Bath; warm plunge; for ladies only (12 ft. long, 10 ft. wide, 3 ft. deep; mean temperature, 94° Fahr.).—The original site of this bath was immediately over the springs supplying the bath, and its mean temperature was 102° Fahr.; but, at the suggestion of the Inspector of Works, Rotorua, the late Domain Board had a new building erected and bath constructed (at a cost of £196 14s.) alongside the spring, and then led the water into it. The result, I regret to say, has not proved satisfactory, for the temperature fell to 91°, and was never higher than 98°; so that this, which was at one time the most favourite bath for ladies, has become practically deserted. The original temperature — viz., 102° — was not evidently sufficient to warrant losing any of this heat through conduction by drawing it off by means of cold metal pipes, and having the heat still further reduced by constant contact with the cold concrete walls of the bath proper. In order to try to restore the popularity of this bath, I would recommend that in the first instance the bath be lined throughout with wood, which for practical purposes is a non-conductor of heat or cold, and, if this fails, to replace the bath-building over its old site, substituting a new wooden bath for the present concrete one. I have heard many ladies deplore the loss to their use of this particular bath. (Estimated cost of lining this bath, £15.)

(e.) Removing "Octagon" Building, and No. 8 Drinking-spring.—The old Octagon building, which formed a little summer-house, with its supply of Te Aroha drinking-waters, has been removed to a lower level, so as to take advantage of the laws of gravity, and at the same time to reduce the supposed superincumbent pressure of water upon the source of the spring, and also to secure a perfectly fresh stream of water for drinking purposes. Originally this water had to be lifted from the well surrounding the spring by means of a small hand-pump. Now the water is directly drawn from a tap. The overflow from the spring is led into a glass-lined concrete tank immediately adjoining, which collects a supply for purposes of distribution, as a valuable drinking-water, to Rotorua and other parts of the colony. The building has been somewhat renovated and freshly painted. In order to provide more attractive immediate surroundings for this famous spring, I beg to recommend that suitable white-marble fountain-fittings be attached to the outlet, and that the Octagon be fitted with comfortable garden-seats. These, I think, will assist in making the drinking of this water far more inviting than at present. (Estimated cost of fountain, £15; seats, £5 10s.: total, £20 10s.).

(f.) Completion and Opening of Bowling-green.—The contract for the work of excavation and formation of this green was completed last year, but the finer work of forming the green, grading the slopes, fencing the ground, sowing the seed, &c., was undertaken and completed by the late Board during this financial year. The levelling of the ground, an important work requiring great exactitude, was kindly undertaken by Mr. Harrison of Devonport, a surveyor, who is a bowling enthusiast, and who gave his services without fee or reward. But I understand that this levelling process must be carried out every year at the hands of one who can efficiently use the theodolite, so that if we are unable to get this work done voluntarily it will form a small annual charge on the Department. The green was formally opened on New Year's Day, 1903. It has proved a great attraction, and has been largely patronised throughout the season, being considered by many old bowlers one of the best greens in the colony.

(g.) Erection of Bowling-green Pavilion.—On the rising ground adjoining the bowling-green the Domain Board erected a somewhat small pavilion, painted in appropriate colours outside and varnished inside. It is divided into three compartments; two rooms at either end, one being used as a gardener's tool-room, and the other is fitted with lockers, and is used for storing bowls, mats, scoring-boards, &c. Between the rooms is an open space with a seat all round, and the whole forms a very artistic and useful building.

(h.) Formation of Terrace.—A piece of ground about 180 yards long by 30 ft. wide, lying about midway and across the Domain, and about 90 yards to the rear of the "Cadman" bath, has been formed and levelled in the rough to form a terrace at a contract price of £153 14s. 6d. This will help much to beautify the grounds, but requires now the hands of a landscape gardener to supply the finishing touches in grading slopes, formation of paths, sowing grass-seed, &c., in order to complete the work.

(i.) Te Aroha Waters.—At the request of the Balneologist we have during the last few months been sending 30 to 40 gallons of drinking-water from the Octagon Spring to Rotorua, where it is being dispensed in the Sanatorium-grounds at 1d. per glass. It is gratifying to know that the Balneologist (Dr. Wohlmann) appreciates the valuable medicinal properties of this water, as we understand it is being used freely at Rotorua with benefit. I think that this benefit might be made more general by the introduction of Te Aroha waters to all the large centres of the colony. Since I have been here some of the medical men of Auckland have made requisition for them. The medicinal qualities of these waters, no less than their acknowledged superiority as a splendid table mineral water, warrant their being placed before the public in a more systematic manner.

2. Revenue.

I beg to present herewith a certified copy of the last annual balance-sheet of the late Te Aroha Hot Springs Domain Board for the year ending the 31st December, 1902. Also summary of receipts (showing various sources of revenue) for period from the 1st January, 1903, to the 31st March, 1903, as follows :—

	£	s.	d.
Bath fees	366	3	6
Out-patients' fees	16	5	6
Tennis fees	7	16	6
Bowling fees	13	19	6
Library fees	5	8	0
Towel fees	30	9	4
	£440	2	4

5,023 public baths; average cost, 4¼d. each. 9,779 private baths; average cost, 5¾d. each.

3. Requirements *re* Staff.

(a.) Appointment of Landscape Gardener.—In last year's recommendation I find that the appointment of a competent landscape gardener was strongly urged. I beg therefore to again urge the appointment of such an official. There is plenty of work to be done in the formation of fresh paths, flower-beds, terraces, mountain-track formation, &c., to keep him thoroughly occupied all the year round for many years to come. The conformation of the rising ground in the Domain is particularly adapted for the artistic display of scenic effect, and much grace and beauty could soon be added to this favourite health resort at the hands of a skilful landscape gardener. I therefore strongly recommend that such an one be appointed.

(b.) Qualified Nurse.—Having to undertake the medical work of this Spa, the necessity for a female attendant needs no explanation. Her services would be required at the examination of many female patients, and that these services be efficient it is necessary that she be duly qualified. As I have also to undertake the surgical requirements of this district, and may be called upon to attend all forms of accidents or other surgical cases, the value of having such skilled assistance cannot be overestimated. I beg to propose that, when the services of this official can be spared, she may be allowed to nurse any of the out-patients at a fee of £2 2s. per week for ordinary cases and £3 3s. per week for obstetric cases or cases of infectious disease; these fees to be paid into the Public Account. This district has in the past again and again proved itself too poor to retain the services of a first-class medical man. For the same reason it could not maintain the services of a duly qualified nurse, but, nevertheless, at certain times it has been as much in need of one as any part of the colony. I therefore recommend the appointment of a duly qualified hospital nurse as nurse and attendant.

(c.) Bath Attendants.—At the present time there are only two bath attendants at Te Aroha, and as these relieve each other at certain periods of the day there is practically only one bath attendant on duty at a time in charge of the private baths at Te Aroha. I therefore beg to recommend the appointment of two others, male and female, to take charge of the public baths. I estimate their salaries at: male £75, and female £71 10s. per annum.

4. Recommendations for Current Year.

I beg to recommend the following new works as necessary for the efficient working of this Spa :—

(a.) Repair of Cold Swimming-bath.—In order to supply a long-felt want, created by the absence of a cold swimming-bath, the late Domain Board built a very large concrete swimming-bath at a cost of about £300. But one mistake was made in placing this bath over uncertain ground, with the result that the weight of water, when the bath was full, cracked the bottom, and allowed the water to escape. All available money being required for more important works, this bath has been allowed to lie idle for a considerable time. Frequent requests have been made by the public to open this bath for their use, especially in the summer months. After conferring with practical men, I am of opinion that it is by no means impossible to repair this bath so as to make it watertight, and thus resuscitate a bath that will be largely patronised by the public generally, and by school-children learning to swim. The estimated cost of the repairs to this bath is—

	£	s.	d.
Concrete and cement work, including all materials and railway iron for stiffening the bottom	191	9	0
Carpentering work	7	10	0
Painting	17	10	0
	216	9	0

(b.) Alteration to Domain Office Building.—The appointment to Te Aroha of a Resident Medical Officer makes it necessary for the Department to provide him with suitable apartments in which he can carry on his work. There is at present no consulting-room, waiting-room, or other such conveniences. I therefore recommend that such alterations and additions to the present Domain Office building as may be found necessary may be undertaken, so as to supply a much-needed want—viz., a waiting-room, a consulting-room, a small operating-room, and a lavatory, at an estimated cost of £160.

(*c.*) *Improvements suggested in Former Portion of this Report* (see section 1. "Works completed during year").—I beg to recommend that the following improvements (incidentally referred to when dealing with the buildings) be undertaken, viz.:—

	£	s.	d.
1. No. 6 Bath—Extension of shower partition	0	7	6
2. No. 2 Bath— "	0	10	0
3. No. 1 Bath—Lining concrete bath with wood	15	0	0
4. "Octagon"—Fountain-fittings and improved seats	20	10	0
	36	7	6

(*d.*) *Vapour Bath.*—From the hot-water tunnel a constant supply of steam is emitted, and it has been suggested that this, instead of being allowed to run to waste, could be easily utilised in the formation of a hot vapour bath, in the same manner as the hot vapour is caught and utilised over the fumaroles at Rotorua. Such would form a very useful bath, and in addition be a further means of revenue, at a comparatively small outlay. The estimated cost of erecting this is £100.

(*e.*) *Painting Existing Buildings.*—The exterior of the "Cadman" (private) Bath building, No. 6 Bath building, and the band rotunda urgently require to be painted; as all these must suffer serious deterioration if they are not quickly painted. I beg to recommend that this work be done. The estimated cost is:—

	£	s.	d.
"Cadman" building and roof, two coats	45	0	0
No. 6 Bath " " "	15	0	0
Band rotunda " "	8	0	0
	68	0	0

(*f.*) *Removal of Old Building (No. 3).*—I strongly recommend the removal of an old bath building styled No. 3. It has long been out of use, and, being in a more or less dilapidated condition, is only an eyesore in the beautiful and picturesque Domain grounds.

(*g.*) *Formation of Grass Tennis-court.*—Last month a number of visitors interviewed me, and begged for the formation of a grass tennis-court, stating that the existing asphalt courts were too hard for invalids to play on. Their contention seems a reasonable one, and as the work could be carried out by my own staff, with little expense to the Department, I beg to recommend that this court be formed.

(*h.*) *Douche Baths.*—In last year's annual report, Dr. Wohlmann, when reporting on the health resorts of the Continent, makes special mention of the douche as one of the most important modes of the application of water in the treatment of disease. The douche is practically water in motion. It may be at any temperature. In the Aix douche, this water is made to travel at a high velocity, which means that the water is put under very considerable pressure, and for its application requires skilled assistance. On account of the very limited number of cases that visit Te Aroha requiring the Aix or other special douches, I am not inclined at present to recommend the instalment of a very expensive plant in this respect; not at any rate till the need arises. At Te Aroha we have at present only one, an apology for a douche. I am strongly of opinion that two simple and effective douches, one for males and one for females—ones that could be self-applied, similar to the Spout Bath at Whakarewarewa, or other simple douches at Rotorua—would be powerful instruments for good in my hands, and in the light of past experience would be most popular baths. These simple douches, however, could not be installed at Te Aroha until we secure a far larger supply of hot water than is at present available. (Estimated cost of construction of the two rooms, £84 10s.)

(*i.*) *Electric Light and Tallerman Baths.*—If Te Aroha had the advantage of an electric installation I would certainly have recommended the introduction of one of each of the above two baths, but, being without a supply of electricity, consideration of these must be deferred pending the establishment in Te Aroha of this great modern power.

(*j.*) *Prospecting for Hot Mineral-water.*—The last, but far and away the most important, recommendation I have to make is that of prospecting for an adequate supply of hot water. The result of testing the yield of our three sources of hot water is as follows:—

	Gallons per Hour.
No. 1 Reservoir spring	160
No. 2 Reservoir spring	480
Hot-water tunnel spring	60
	700

Equal to 16,800 gallons every twenty-four hours.

Add to this a stored amount in the reservoirs of 14,781 gallons, and we have 31,581 gallons as the total amount of our hot-water supply. I find that 57 gallons are required for each private bath at a temperature of 100° Fahr., and 59 gallons at a temperature of 102° Fahr.—that is, with cold water at its present temperature. This would give in the first instance 554 baths, and in the second 534 baths. But it must not be forgotten that the public baths Nos. 2 and 6, and the douche, receive a very large, almost their sole, supply from the sources mentioned. These, together with the inevitable waste caused by the general public when taking private baths, so far reduces the amount available for them that I regret to state that on certain holidays, notably Christmas and Easter, when there has been a rush I have been obliged to shut down the private baths late in the afternoon.

It is, therefore, a matter of the very first importance to provide this spa with an adequate hot-water supply. Indeed, several of the important recommendations made in this report (*e.g.*, the formation of the two douche baths, &c.) cannot be successfully carried out without first of all getting a largely increased hot-water supply.

Having made inquiries as to the cost of boring, I give the following quotations: The estimate of the Inspector of Mines, Thames (who knows the country) is an average of £3 per day for a 4 in. bore, of which he calculates that from 20 ft. to 40 ft. could be done per day for the first 200 ft.; after that the number of feet driven per day decreases as the depth increases, but I cannot state exactly in what ratio. This estimate is based on the use of the boring plant owned by the Government, and controlled by the Mines Department. Mr. D. C. Thompson, local representative of the Goldfields Diamond Drilling Company of Kalgoorlie, who is at present conducting boring-operations in the Thames District, is willing to do similar work here, using a bore of $1\frac{1}{16}$ in. in diameter at the following rates:—12s. per foot from surface to 1,000 ft. level; 15s. from 1,000 to 1,200 ft. level; 17s. 6d. from 1,200 to 1,500 ft. level. The Department would have the privilege of stopping or continuing boring at any time, after the 300 ft. level had been reached. The company would provide and man the whole of the necessary plant, and carry out operations on any reasonable site chosen by the Department. They will not agree to begin operations for a less amount than the value of 300 ft.

I therefore strongly recommend that the first work of any description undertaken by the Department in the interests of this spa be in the direction of trying to secure an adequate hot-water supply.

The Superintendent, Tourist Department, Wellington.

Geo. G. Kenny, M.B., Resident Medical Officer.

APPENDIX III.

REPORT ON THE LITTLE BARRIER ISLAND.

Sir,— Auckland Institute, Auckland, 17th June, 1903.

I have the honour to forward the following report on the Little Barrier Island, the guardianship of which has been placed by the Government in the hands of the Institute.

The curator employed by the Institute, Mr. R. H. Shakespear, has resided on the island for the whole of the year. He reports that no unauthorised person has attempted to land on the island, and that there has been no interference with any portion of the fauna. The position of his house, which commands the whole of the south and south-west shores of the island, including the two chief landing-places, renders it easy to keep a constant watch on the greater part of the island, and in order to make it quite certain that the eastern and northern sides are not surreptitiously visited, regular trips are made by boat whenever the weather will permit. It may be mentioned that this part of the island is surrounded by cliffs ranging in height from 400 ft. to over 800 ft., which can only be scaled in two or three localities. The landing in front of these places is difficult and often dangerous, and it is not at all probable that collectors will risk an attempt to land in a locality when a sudden change of weather would effectually trap them. The curator has kept open a track to the summit of the island, the altitude of which is about 2,200 ft., and he has also maintained a few other tracks that are necessary for visiting various localities.

In previous reports it has been mentioned that the chief enemy of the native birds appears to be wild cats. These were introduced by the Maoris many years ago, and were allowed by them to run wild. By poisoning, shooting, and trapping the curator has thinned their numbers considerably, and they are now not often seen. The Norway rat, which is such a serious enemy on the mainland, has fortunately never found its way to the Little Barrier. The Maori rat, which is common, does not appear to injure the birds in any way.

The curator reports that birds are everywhere plentiful. Bell-birds and tuis are particularly abundant, and breed in great numbers on the flat near the southern landing-place. Whiteheads and robins, which are now practically extinct on the mainland, are by no means uncommon. The rare stitch-bird, to seek which so many collectors visited the island before it was acquired by the Government, is mainly seen on the south-east side of the island, but during the last two or three years several pairs have been seen during winter on the flat near the curator's house. The curator considers that it has increased considerably since he was placed in charge of the island. It is interesting to know that all the species of birds mentioned in the lists prepared by Captain Hutton and Mr. Reschek, and published in the Transactions of the New Zealand Institute, are still to be found on the island. And there can be little doubt that if a resident curator is maintained, thus preventing the depredations of collectors and dealers in natural-history specimens, the island will long remain a secure home for a large part of the avifauna of New Zealand.

The house erected by the Government as a residence for the caretaker has been kept in good order and condition, as also all outhouses, boat-sheds, &c. A neat garden and orchard has been formed, and is well looked after; and generally all matters connected with the maintenance of the island have received proper attention.

The Institute would again draw the attention of the Government to the desirability of a few pairs of huias being transferred to the island from the mainland. The huia is a bird which is now becoming very rare in its special habitats, and in a few years will probably become extinct. The Little Barrier is a locality that would probably suit it better than any other, and, if it is intended to make an attempt to preserve it anywhere in New Zealand, no time should be lost in attending to the matter.

I have, &c.,

T. E. Donne, Esq., Wellington. T. F. Cheeseman, Secretary.

APPENDIX IV.

REPORT ON NATIONAL PARK AT MOUNT EGMONT.

The number of visitors to the North Egmont House and reserve during the past season was 1,082. The receipts totalled £141 15s., inclusive of a Government grant of £50. The expenditure was £112 8s. 8d.; the principal items under this category being caretaker, £31 6s. 2d.; toll-keeper, £5; house and cottage repairs, &c., £22 12s. 6d.; labour on tracks, £36 1s.; clearing and grassing upper paddock, £7 10s. The unexpended balance will be spent in further improvements to the house and tracks.

The season just ended has been a record one as regards the number of visitors to the Northern House and its surroundings. The heavy traffic over the main track, coupled with the broken weather, has had the effect of damaging the roadway considerably, but the work done recently under the supervision of the Roads Department and the North Egmont Committee will have the effect of keeping the track through the winter in fair condition ready for the opening of next season. The track from the North House towards the summit of the mountain will be opened out and improved, and also the pathway from the house to the Waiwakaiho Gorge and thence on to Bell's Falls will be reopened and made available to tourist and local visitors wishing to visit these undoubtedly charming spots. It is the North Committee's intention to keep the house open during the coming winter months. This is an experiment which it is hoped will prove successful; the novelty of the surroundings, and Egmont in its winter garb, should prove attractive to the more hardy type of mountaineers.

The popularity of the mountain as a health resort is being every day more appreciated, and its recuperative power is continually recommended by the medical profession. The high altitude, with its bracing and health-giving surroundings, coupled with the dry porous nature of the ground (light layer of soil resting on a scoria-gravel bed), has proved remarkably beneficial to all classes of the community.

The East Committee labours under the disadvantage of having their house more exposed than the others, and consequently only the hardy and more robust seem to favour this route, the majority of the visitors from Stratford and its surroundings seldom reaching the plateau where the house is situated. They drive to the end of the Pembroke Road, leave their horses and vehicles there, stroll up the bush track until they reach a convenient picnicking-ground, and possibly afterwards penetrate another mile or two into the Reserve; but the pleasures of a day in the bush appear to suffice the generality of visitors, who numbered three hundred and fifty. The receipts for the past season, including a Government subsidy, were £70 13s. 1d., and the expenditure £68 4s. 8d.

Assisted by a Government subsidy, and by subscriptions from the Road Board and the general public, the energetic West Committee have done a good year's work, the effects of which will be more noticeable as time goes on. A house has been built 32 ft. by 14 ft., consisting of a general room, and two sleeping-rooms each containing twelve bunks; but about thirty-five persons could be accommodated if required. Tables and forms and a few utensils have been provided, but as the building has only lately been completed the formal opening will be made next season. A horse-track on a fairly easy grade has been completed, so that goods can be packed right up to the house. Although without a house to rest or sleep in on the end of a trip, two hundred visitors ascended the mountain *viâ* Rahotu by this route during the season. The receipts, £90, including a grant, will be quite exhausted by this initial expenditure.

The South Committee's house has again had a very successful season, as its record of 1,084 visitors will show. The large number of visitors who make the mountain trip their great yearly outing tends to show the interest taken by local residents. The comfortable house, together with the lovely scenery in the immediate neighbourhood, which can be enjoyed without much exertion, has doubtless a great deal to do with this. No details of expenditure have been received from this committee.

During the year, under the Act of 1901, the Board leased for a term of twenty-one years the portion of open land in the reserve near Ahuahu, mostly to owners of adjoining lands, who under

the conditions of lease must fence, maintain, and keep the same in good order and repair. Only a sketch survey has been made, however, and the Board unfortunately has no funds at present for the final survey.

The year as a whole has been well ahead of its predecessors as regards visitors and the interest taken in Mount Egmont, although the season has been one of the shortest and wettest on record.

Having so often pointed out the great necessity for a centrally-situated house or hotel where ordinary comforts could be obtained at moderate rates, together with a carriage-road thereto, I do not think I need refer to it on this occasion beyond saying that, considering its proximity to the great tourist highways of the colony by sea and land, there is no place of its interest and character in the colony that can be exploited with less inconvenience to the traveller and at less expense or loss of time than this beautiful and easily-climbed mountain; and I trust, now that Mr. Donne, the head of the Tourist Department, has visited it (although under unfavourable conditions as regards weather), and has had pointed out to him what is to be seen there and in the other historic portions of Taranaki, where the ruins of the Native strongholds and ancient battle-fields only now remain as the silent evidence of the eventful struggle which took place between Briton and Maori for supremacy in this district, these matters will not be lost sight of.

During the year the Roads Department have expended £79 19s. 1d. on 1 mile 26 chains of bridle-road constructed, 2 miles 40 chains of bridle-track repaired, and 10 chains widened; and £47 on 4 miles of bridle-road repaired. On Dawson's Falls road there are 25 chains of dray-road in hand.

JAMES MACKENZIE,
Chairman, Egmont National Park Board.

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