

2. The general arrangement and structural peculiarities of the bath-houses: I obtained rough plans of some of the most important buildings, which may possibly be of service, though the establishments seemed to me to be generally of too elaborate a type to be likely to be suitable to Rotorua. In many of these places, notably in Austria, there was a luxury of architecture, a wealth of beautiful but chill-suggestive marble, that to me, at any rate, seemed overpowering, and I could not help feeling that there was more real comfort in the comparatively homely timbered buildings of Nauheim than in all the cold glory of marble palaces.

3. The arrangement of the several baths and rooms, the material of which they were built, and more particularly the resistance of those materials to sulphurous fumes.

(a.) Arrangements: In most of the spas it has been found advisable to reserve one part of the building for men and the other for women, and, though this has not been the plan adopted at some English resorts, yet I think it is eminently desirable, more especially as it economizes the use of dressing-rooms, and enables heated and dishevelled patients to go to the cooling-room without necessitating a hurried and often dangerously premature toilet. The system prevailing at Aix les Bains of altogether dispensing with a cooling-room and sending the patients home to cool is, I think, entirely to be deprecated. With a separate department for ladies, a great economy of space and money can be effected by using the cubicle system of dressing-rooms opening on to a common cooling-room.

I have notes, too, of the various systems of ventilating and warming the rooms and of warming the floors and the towels by means of the natural heat of mineral water.

(b.) Materials: Incomparably the best material for all large baths and for such walls of bath-rooms as are exposed to douches and splashes is certainly a layer of glazed tiles set in cement, and fitting together as closely as possible. There is a slow but certain action of the mineral-water vapours on the cement left exposed in the cracks between the tiles, but if these are closely set the action may be practically disregarded. The beauty of this material too, which may be had in any colour or design, is a great point in its favour. At the present moment I am experimenting with the action of various acids on tiles, but too much reliance should not be placed on laboratory experiments, and I am therefore bringing out with me a sufficient number of tiles to build an experimental bath-room. I have little doubt that the tiles I am bringing will resist the strongest fumes. For special baths I found various metals used, especially copper and zinc, but where sulphurous acid is present the less metal used the better, either in baths or fittings. Invariably for mud baths, and generally for cold-water treatment, I found wooden baths employed.

4. The methods of collecting the waters at the source and the materials used for pipes.

5. The various douches in use and their mode of application: As these douches are amongst the most important of all the implements in the hands of the balneologist, I was careful to take detailed note of the various apparatus in use, but I could not help being struck by the fact that at Aix, which is the home of douche-massage, the mechanical apparatus was of the utmost simplicity, the skilled fingers of the attendant converting one douche into another and taking the place of mechanical devices. The arrangements for maintaining the pressure and for altering the temperature of the douches I examined with most especial care, and I have drawings of various mixers in use, though the interior arrangements of some of the best were kept secret. I have the names of various Continental firms who make these apparatus, but I can obtain just as good, I believe, in England. At every spa I investigated the action of the various mineral waters on the nozzles of the douches. At Aachen, whose waters appear to closely resemble those of Rotorua, the best metal is found to be *messing* (a kind of brass). To more thoroughly test the working of the douches, at Aix les Bains I had two massage baths myself, while at Aachen two attendants were bathed and massaged for me.

6. The mud baths, which are coming more and more into favour on the Continent of Europe: The mud is made from peat, ground, mixed with mineral water, and artificially heated. I have detailed notes of the process of preparation, though I understand that in New Zealand Nature carries out the whole process unaided.

7. The various forms of inhalation: Magnificent arrangements were made for this at several spas—notably at Baden—and I think that a good deal might be done in this direction at Rotorua at small expense.

8. The various forms of local and general hot-air and vapour baths: With the supply of boiling water in the Rotorua district most of these might easily be installed.

9. The Zander Institutes for mechanical movements I found in great perfection nearly everywhere, and everywhere the medical men spoke in their praise. The expense necessary to their installation is, however, very considerable, and I am afraid that we must not think of a Zander Institute for Rotorua for some time yet.

10. The various forms of electrical treatment were, of course, in use at every spa: A simple form of electric bath could be very easily and economically installed.

11. The treatment by compressed and rarefied air as seen at Baden and at Wiesbaden: This is useful in certain cases, but involves considerable expense and a certain amount of risk, and I should not advise its adoption.

12. The carbonic-acid mineral-water baths, of which those of Nauheim are a type: These are of great and growing importance. They can be imitated artificially to a certain extent.

13. The arrangements for bottling mineral waters for table waters.

14. The local government of the spas, and the arrangements made for the recreation of visitors: These varied in different localities. In some the springs belonged to the Government, in some to the town, in some to private individuals. From what I saw I should insist on the importance of the ownership of the springs never being allowed to rest in private hands.

As a type of a particularly well-managed spa I will instance Baden Baden. Here everything—baths, amusements, gardens, sanitation—is in splendid order, and nothing is allowed to mar the clean, healthy, and beautiful appearance of the place.

(a.) At the head of the bathing establishments is a Medical Director appointed by the Government, and who is responsible for the condition of the baths generally.

(b.) A medical committee appointed by the practitioners of the town suggests technical improvements in the baths and sanitary arrangements for the consideration of the Medical Superintendent.

(c.) A lay committee of three is responsible for all amusements, and levies the "cure tax" on all visitors, which admits them to all the public entertainments, and to a large extent makes the bands, concerts, &c., self-supporting. The committee is composed of a chairman, who at present is a retired military officer, and receives a salary—he is a permanent official; the Mayor *ex officio*; and an elected member of the Town Council.

15. The manner in which the spas are advertised: Many towns spare no expense in distributing handbooks profusely illustrated; and the illustrations are really first class.

16. Analyses of the principal waters are published, signed by a recognised authority, such as Professor Fresenius, of Wiesbaden.

I have, &c.,

ARTHUR S. WOHLMANN.

#### TOURIST RESORTS AND ROUTES, NORTHERN AUCKLAND.

From observation I am of opinion that an interesting and popular tour can be opened up from Auckland *via* Helensville, Wairoa River to Whangarei, and back to Auckland by the East Coast, or *vice versa*. With this view the Department has written to the Hobson and Whangarei County Councils suggesting that the road should be formed from the landing on the Wairoa River to Whangarei, about fifteen miles of this road being at present unfit for coach traffic.