

It is quite clear, therefore, that the boarding-accommodation is in advance of that for bathing, and that a cry for more baths will shortly be heard. The question is, How is this demand to be met? The only way I see out of the difficulty is to conserve the entire supply of 36,000 gallons, build a concrete cooling-tank of 1,000 cubic feet capacity, and double the number of baths. I have submitted these figures and queries to Mr. Malfroy for his opinion, which he has been kind enough to formulate in the following letter:—

*Re HANMER PLAINS HOT SPRINGS.*

SIR,—

In reply to your queries (and taking the figures quoted by you as to the discharge of springs Nos. 1 and 8 at 25 gallons per minute, and No. 4 at one-third of that, also the size, level, and respective position of the tanks, &c., as correct) I beg to state,—

1. Are the springs equal to the demand (*viz.*, the filling of the present twelve baths seven times during the day of six hours)? Each filling will require 1,743 gallons, or a total of 12,205 gallons, being 7,628 gallons from Nos. 1 and 8 springs, at a temperature of 115° Fahr., and 4,577 gallons from No. 4 spring, at a temperature of 83° Fahr., to make the 12,205 gallons at a temperature of 103° Fahr. for the baths. The springs Nos. 1 and 8, at 25 gallons per minute, would give 9,000 gallons in six hours, and, estimating the supply derived from No. 4 spring at one-third, or 3,000 gallons for the same period, we have the 12,000 gallons required without any storage whatever. But, as the demand on the springs is irregular during these six hours, some provision must be made to store up 4,000 gallons to meet it and avoid delay.

2. As to the probable cry for more baths, and how the demand is to be met: The supply from Nos. 1 and 8 springs in twenty-four hours is 36,000 gallons, and, taking the supply of No. 4 at one-quarter of that, we have 45,000 gallons available during the twenty-four hours.\* This quantity, properly stored and arranged that it may be readily mixed so as to reduce it to the required temperature, would be sufficient to provide 400 baths of 112 gallons each daily. This number of baths is not likely to be required for a considerable time. I would therefore suggest (provided the nature of the springs and surrounding ground will permit it) the rising of the level of No. 8 tank 1ft. 6in. higher than it is. This will give a depth or storage-room of 3ft. 6in. in No. 8 tank, and 2ft. in No. 1 tank, above the level of the outflow-pipe, equal to—storage-capacity of No. 8 tank, 9,843 gallons; storage-capacity of No. 1 tank, 3,937 gallons; natural flow of springs Nos. 1 and 8 in six hours, 9,000 gallons; natural flow of spring No. 4, 2,500 gallons: giving a total of 25,280 gallons available for baths during the time the baths are open; and, taking off the quantity required for the present twelve baths, seven times a day, eighty-four baths here before mentioned—*viz.*, 12,205 gallons—will leave a balance of 13,075, representing 116 baths of 112 gallons each available for future requirements. If, however, the nature of the springs and surrounding ground will not permit of the rising of No. 8 tank as before mentioned the tank should be raised as much as practicable, and a storage and cooling-tank of about 10,000 gallons should be constructed in the best possible position to make up the quantity here before stated.

Having thus secured the required quantity of water, the next question is to provide baths, &c., to utilise it. (a.) We have already twelve baths, which, owing to their peculiar construction, cannot be used more than about seven times each bath during the day of six hours. This gives us eighty-four baths. (b.) I would recommend the erection of two wings to the present bath-buildings (as per sketch), providing in each wing one good-sized sitting-room in the front part, furnished with tables, chairs, couches, &c., and warmed in winter by a china stove in the centre of the room, and four private baths, with two dressing-rooms to each bath, one large public bath or piscine—like the Rachel bath at Rotorua—say, 10ft. by 12ft. by 2ft. 3in., with six dressing-boxes, at the back of each wing. Eight baths thus constructed, so that the person bathing occupies the bath only during the time of actual immersion, can readily be used twice during each hour, which for six hours gives ninety-six baths, consuming 10,752 gallons of water, leaving a balance of 2,322 gallons, which, together with the 20,000 gallons of natural unstored supply from the springs, would be available to occasionally renew and keep the water of the piscines at the proper temperature. I suggest this piscine or public bath, as I think it absolutely necessary to provide some cheap baths for people in poor circumstances.

As to the possible revenue, it would be—say, 180 baths (half at 1s. and half at 8s. per dozen), £7 10s.; two piscines (at twelve baths each hour in each piscine for six hours, 144 baths, half at 6d. and half at 4d. each), £3: giving a daily possible revenue of £10 10s., and a bathing-capacity of 324 baths daily, and a daily reserve of about 1,500 gallons of unstored water; and, if required in future, the ends of the new wings could be extended, and more baths provided, until the full capability of the springs is reached. As to the cost of the works, it is a matter which can be best calculated on the spot, but, considering that there is only one room in each wing to be finished inside, and that the remainder of the building would only be a shell, the cost should not be very great. But, whatever is done, I would strongly recommend the erection of the bath-rooms with two separate dressing-rooms. They are the kind generally used in the newest thermal establishments which I visited whilst in Europe, and possess the following advantages: The dressing-room gives bathers greater privacy to dress and undress, and security for their clothes and valuables. They can be kept clean and dry much easier, there being no splash or stain about them, as is the case when bath and dressing-room are combined. The bath-room can be concreted all over, with the bath in the centre of the room, so that in the case of invalids requiring assistance the bath-attendant can circulate freely around, and render all assistance required. The bath-attendant having an independent access to the bath-room, he can immediately after the immersion is over set to work to empty, clean, and refill the bath, thus greatly increasing the number of baths to be taken within a certain period, without in any way intruding on the privacy of bathers; and, lastly, the bath being almost constantly in use, it acquires and conserves the temperature much better.

Dr. Ginders, Rotorua.

I have, &c.,

C. MALFROY.

These calculations, I think, give a fair idea of the bathing-accommodation which the Hanmer Springs are capable of affording. The expenditure necessary to carry out Mr. Malfroy's suggestions would, of course, be considered. The question is, Would such an expenditure be justified, or would the erection of a first-class hotel close to the springs be likely to prove a financial success? Some years ago an attempt was made to float a company, with a share-capital of £15,000, to build such an hotel. Very favourable terms were conceded by the Government for the lease of 150 acres; but, as only £2,000 of the necessary capital was subscribed, the thing fell through. One paragraph in the prospectus is amusing; it runs thus: "The Hanmer Springs are situated about 1,400ft. above the level of the sea, at which elevation a delightful, bracing atmosphere is enjoyed, greatly assisting the general health, and adding to the pleasure of the visitor, in striking contrast to Waiwera and Rotorua, which are situated in a *relaxing* climate," the difference of climate between Waiwera and Rotorua being really greater than that between Sumner and the Hanmer Plains. With the existing arrangements at Hanmer such an hotel could not possibly be a success. Already a reduction of the bath-fees has been asked for in the House of Representatives by the member for the district, and the two hotel-proprietors find it necessary to provide for a class of patients at £1 5s. per week, with free transit twice daily to the baths. The return fare from Christchurch to Hanmer and back—186 miles—is £1 10s.—less than 2d. per mile. The entire catering is in the interest of a class of patients

\* It has been shown that frequently in the summer the No. 4 spring fails to provide the necessary quantity for six daily fillings of the twelve baths, although its entire yield is conserved; so that its daily product cannot exceed 4,500 gallons.—A. G.