

With regard to the system to be adopted, one of two methods present themselves for selection:—(1) Adoption of the septic-tank system; (2) the erection of a pumping-station and the removal of the whole sewage, with or without treatment, to the ocean at Lawyer's Head. Both of these methods present much that can be said in their favour, and the City Council have in their possession elaborate reports from highly qualified engineers bearing on these questions. The adoption of a scheme of some kind, subject to the aforesaid amalgamations of boroughs, has been determined on by the City Council, but it is quite recognised by them that the matter of a final selection of a scheme is one for careful consideration.

WATER-SUPPLY.

Leaving out the larger towns which have installed a general water-supply, it may be accepted as a fact that the great majority of our population obtain this most necessary article of food from shallow wells. Now, while this is unavoidable in many instances, it cannot be gainsaid that such a system of supply is fraught with the greatest danger. The popular superstition that because the pipe has been sunk some 10 ft. or 15 ft. that therefore the water must be pure, is just as inaccurate as it is universal. The false sense of security which this error brings has given rise to some most remarkable experiments being made by householders upon themselves. It could hardly be believed by those who have not investigated these matters that a man would be foolish enough to drink water obtained from a tube sunk only 12 ft. deep in a porous-gravel soil, surrounded on all sides by privies of the most ancient and dilapidated nature. In one instance there were no less than six such sources of pollution within a radius of 16 ft., and the well was in the centre. This of course was an exceptional condition of things, but it serves to point the moral, if it does not adorn the tale. In order to help our rural population to avoid the dangers so often attendant upon the use of shallow wells, I have drawn up and had circulated a series of suggestions and notes, the gist of which is as follows:—

- (1.) No shallow well should be sunk at less than 150 ft. from a cesspit, midden, or stable.
- (2.) The trend of the ground should be noted, and the site of the well ought to be higher than the house and privy to allow of the surface-water to drain away from, instead of towards the well, as is so commonly the case.
- (3.) The ground about the well for some 100 ft. ought to be kept clean, no slops should be thrown upon the ground, nor should poultry, pigs, or animals of any kind be housed on that area.
- (4.) It would hardly be necessary, one would think, to warn people against burying nightsoil close by the well, but the fact remains that a very large number of people are so situated that, because it is difficult to otherwise dispose of the nightsoil, this foolish and dangerous practice is indulged in. In such cases the water from the well ought never to be used for potable purposes. The better plan is to use tank water.

The best plan of all is, where possible, to convert the shallow well into a deep well—that is, drive the pipe deep enough to tap a water which is cut off from the surface-water by means of an impermeable layer of soil.

Water from streams should not be drunk without previous filtration, as the eggs or ova of many of the parasites, such as tape-worm, hydatids, &c., are deposited upon the surface of the water.

Water-supply for the Larger Cities.

Special attention has been given by the various Commissioners to this most important matter. It is a well-recognised fact that, more than anything else, an adequate supply of pure, wholesome water is an absolute necessity for any community. The supply must be generous and ample, or uncleanness and ill-health result; it must be free from all contamination with sewage and surface-water, or preventable diseases, such as enteric fever, &c., immediately begin to claim their victims.

While acknowledging that the time at the disposal of the various Commissioners for inquiry into the various water-supplies was, in some instances, not so great as might have been desirable, this I will say: the pictures presented can be accused of incorrectness only on the score of incompleteness. All the statements made are accurate.

Auckland.—While of late strenuous and earnest efforts have undoubtedly been made in the matter of public hygiene in the northern capital—while there are, indeed, ardent reformers upon the Council of that city—the fact remains that in many respects Auckland is far behind. In respect to the water supplied, she is unquestionably far behind all the other large centres. It is neither adequate in quantity, nor is the quality above suspicion.

At the present time the people of Auckland draw their water-supply from what is termed the Western Springs. On the occasion of one of my visits there had been a protracted drought, and in consequence of the limited supply the water was cut off every evening at 6 o'clock for a number of hours. The main conduit leading from these springs is composed of earthenware-pipes joined together by cement. This main conduit passed through the centre of a lagoon formed by the waste water from the engines and pumping machinery. At the time of my visit a considerable portion of this lagoon was covered with a green scum. The upper third of the pipe which conducted the water from the springs to the pumping-station was uncovered, and therefore exposed to the sun, while the lower two-thirds were below the water-level. I drew attention to the danger there was of leakage from this lagoon into the main water-supply owing to the cement cracking at the point of junction of the upper and lower two-thirds by reason of the unequal contraction. It was suggested that the pressure inside this conduit was such as would prevent the soaking in of any of this impure water. This doubtless might be the case while the pipe was running full, but I found on inquiry that such contamination had actually taken place, the result being expressed in an outbreak of enteric fever. As a matter of fact, owing to the shortage of water, this pond actually has been used to augment the general water-supply.