

SANITATION IN MINES.

In all mines the question of the most suitable means of dealing with human excreta is one which forces itself upon the management. At some of the smaller mines, and especially those entered by tunnels, it is the practice for workmen to come to the surface to evacuate, but at extensive mines—especially those worked from shafts—this is entirely out of the question. Among miners there are many men who are very cleanly in their habits and persons; others again are the very reverse. The latter will continue to utilise a disused working for the purpose of evacuation (and make no provision for burying their excreta) until the place is barely fit to pass by. Men of clean habits will take the precaution to bury their excreta, and where this is done the action of the clay or mullock (or coal-dust in collieries) deodorises it and no nuisance is caused.

The provision of latrine accommodation underground has not hitherto been attended with satisfactory results. I have seen accommodation of this kind in some large mines which fully convinced me that the remedy could easily be worse than the disease, and the adoption of underground latrines might create a far greater nuisance and danger than the indiscriminate use of odds-and-ends of places about the mine could possibly do. Again, where mine-owners and managers have provided suitable pails, &c., workmen have been known, not only to ridicule the provision, but to wilfully damage the appliances and so render them unfit for use. With such experiences as these managers cannot be blamed if they decline to provide sanitary accommodation in the mines.

There is, nevertheless, no doubt that the provision of accommodation of this character is most desirable in underground workings, and to make a system of this kind a success the appliances should be light and portable. A drum of galvanised sheet-iron fitted with seat and closely-fitting lid, also with handles to facilitate removal, suggests itself to my mind. Drums of this character could be distributed through the workings in convenient places. A box containing some deodorising agent, such as soil, ashes, or sawdust, should accompany each drum, and every person making use of the accommodation be required to put a measure of soil (or other deodoriser provided) into the drum just as he would flush an ordinary water-closet. Any person wilfully damaging these drums or leaving them uncovered should be punished. These drums ought to be taken to the surface at least every alternate working-day and emptied, the drums being well cleansed with water to which a small quantity of some disinfectant (preferably having a coal-tar product for its base) has been added. Such a disinfectant is to be found in most of the liquid (non-arsenical) sheep-dips on the market, which are practically identical with many of the disinfectants largely advertised and sold under various names. One gallon of liquid dip mixed with 80 to 100 gallons of water gives a solution of ample strength for ordinary purposes.

An outbreak of ankylostomiasis, or miners' worm disease, in a large tin-mine at Dolcoath, in Cornwall, was reported upon some time back by Dr. Haldane, F.R.S., for the Imperial Government. This report has only come into my hands since the foregoing notes were written, and as the matter is of considerable importance to the mining community, and prevention is ever better than cure, I have thought it advisable, in the interests of persons employed in mines, to quote a paragraph from Dr. Haldane's report. Dr. Haldane says, "After consultation with Mr. Martin (H.M. Inspector of Mines) and myself, Mr. Thomas (the manager of the mine) has now introduced a system of pails with accompanying disinfectants for use in the case of necessity by the men underground, and issued strict orders for the prevention of pollution of the mine by excrement. The parts of the mine known to be polluted are also being treated with disinfectants in order to destroy existing foci of infection. I trust that with the co-operation of the men these measures, together with the active treatment by the medical men in the district of all cases of ankylostomiasis, will soon stamp out the disease at Dolcoath. It must be clearly understood, however, that the prevention of the disease is largely in the hands of the men themselves, and that it is their clear duty to observe, and if necessary to enforce, the precautions necessary for preventing the pollution of a mine. Unless proper arrangements are made in other mines and carried out by the men ankylostomiasis is very likely to spread in England, and may easily affect coal-mines as well as metalliferous mines. The Cornish mines are specially exposed, owing to the fact that Cornish miners are continually returning from tropical countries, and that men known to have been infected are already scattered over the district. It must also be clearly understood that many of the men who are only slightly infected show no symptoms at all, as the presence of a few ankylostomes in the intestine may produce no symptoms. Such men may continue for years to be a source of possible infection owing to the presence of ova in the fæces."

If closets are provided on the surface, and the men encouraged to use them before going underground, the necessity for defæcating underground would be considerably reduced.

OLD ALLUVIAL CLAIMS AND TAILINGS-AREAS.

The working of many alluvial claims by hydraulic mining and land-dredging, as well as by the earlier methods of digging, has left areas of ground in various parts of the Middle Island quite unfitted for agricultural purposes. In many instances the land was not suited to farming, even if mining had never been done, and in this respect surface-damage cannot be seriously considered where conditions of this character obtained. There are, however, several places where hydraulic mining and dredging have left the surface in such a condition that the planting of forest-trees might be undertaken with advantage. A practical proof of this is to be seen in the Waikaka Valley, Southland, where the owner of a freehold property has planted trees on the tailings left by a gold-dredge working on the property.

In most cases, however, the old claims and tailings-covered areas are on Crown Lands, and therefore when the claims are worked out, very little if any interest is taken to utilise the ground