MUNICIPAL DEPARTMENT

UTILIZATION OF DUST.

Shoreditch is going to lead the way in one branch of municipal enterprise, and that is the economical disposal of ash-bin refuse. Through the kindness of Mr. H. E. Kershaw, the chairman of the Electric Lighting Committee of the Shoreditch Vestry (writes one of our representatives), I have had the opportunity of becoming acquainted with the grand new scheme which is to utilize the dust of Shoreditch by making it produce light and motive power. The vestry has to dispose of 20,000 tons of dust and ash-bin refuse annually, and the contract for its removal is now let at 3s. 5d. per ton, which means that the vestry has to pay considerably over £3,000 every year to somebody to take it away. A good many local authorities have put up destructors, which burn up the dust, but Shoreditch is coming forward with a scheme which is going to utilize the furnaces to generate electricity for motive power and light. The vestry has purchased a good site in the middle of the borough, on which will be placed the electric generating station, the new baths and wash-houses, and the free library. The furnaces which burn up the dust will heat boilers, which will in their turn supply steam to engines of 2,400 horse power, and these will work the dynamos for creating the electricity, which will be distributed all over the parish in the form of electric light and motive power. And, finally, the exhaust steam will heat the water in the baths and washhouses, and so save an expenditure of £500 a year in coal.

Such in the main outline is the great scheme which the Shoreditch Vestry is carrying out. There comes in the question: How will it affect the ratepayers? From a careful and exhaustive report which has been drawn up by Mr. Mansfield Robinson on the whole scheme, I learn that the total annual expenditure, including interest and capital repayments, is estimated to reach £3,537. Against this must be put the savings in dust disposal, the receipts for motive power and light supplied to private customers, etc., which are put at £5,127, leaving a net annual profit of £1,590. But this estimate is based on the late contractor's price for disposing of dust, which was 3s. per ton. Since then the contract has been placed at 3s. 5d., so that prospects of profit are more favorable than Mr. Robinson puts them now. Thus it will be seen that without a farthing additional burden to the rates—in fact, in a prospect of a saving of £2,000 a year—the vestry will in forty-two years become possessed of a property which will be worth £100,000, unencumbered with debt. Already sufficient applications have been received for power and light to warrant an extension of the original scheme. The London and Walthamstow Electric Railway have made an application for power, the price of which will be sufficient to pay the cost of working the present plant. And Shoreditch is a district of small industries, to which power is of great importance. At present gas engines are used, but the vestry proposes to supply electricity as a motive power, at a price which will be equivalent to gas at 1s. 6d. per thousand feet, the present price being 2s. 10d. And, moreover, the cost of a four-horse power electric dynamo and fittings is only £52, against £100 for a gas engine, while the former takes up less room and requires less fixing.

The furnaces and boilers are of the newest and best description, and are being erected by Messrs. Manlove, Alliat & Co., of Nottingham, Mesrs. Kincaid, Waller and Mannville being the engineers. The dust will be carted in and shot into hoppers, whence it will be conveyed by overhead tramways to the furnaces. Here it passes into the drying cells and is raked forward on to the fire-bars, where it is burnt by forced draught. But the most interesting thing about the present scheme is the system of thermal storage, by means of which the heat of the furnaces is stored up in the day time to be used at night when the electric lighting plant is in use. Every part of the plant is duplicated and in some cases triplicated, to provide against accidents and break-downs. The street lighting to be provided consists of fifty-seven arc lamps and thirty-six lamps of thirty-two candle-power. The streets to be lighted are Shoreditch High street, Great Eastern street, Old street, Curtain road, Rivington street, Bateman's row, Charlotte street, Garden walk, New Inn yard, Broadway, Holywell Lane, Bethnal-Green road and Commercial street. The arc lamps are so constructed that they burn a light of 1,200 candle-power until midnight, and then automatically switch this off and turn on two lights of thirty-two candle-power each.

A last addition to the scheme is one put forward by Mr. Mansfield Robinson. The decision in the King's Norton case has created something like a panic amongst local authorities, and Mr. Robinson has an idea that all the sewer gas in Shoreditch should be collected and passed through the furnaces of the dust destructor.—Daily Chronicle.

SANDSTONE SLABS AS WATER FILTERS.

The importance of thorough filtration through sand is insisted upon by all advocates of purification of water by this system, and reference is frequently made to the beneficial employment of filters in the case of Altona in connection with the cholera outbreak at Hamburg, and to the immunity of this disease enjoyed by Berlin and Madgeburg from the same cause, in spite of the respective pollution of the Spree and the Saale by cholera patients. It is also generally recognized that imperfect and improperly conducted sand filtration does not interest the disease germs, and cases are given where epidemics of cholera and typhoid fever have been ascribed to the careless management of the filter beds.

In consequence of the fact that the effective work of the sand filter is all done in the topmost layer of the fine sand, that impurities do not penetrate to a greater depth than a fraction of an inch, and that the deeper layers only serve to support the superficial sand, Mr. Fisher, the director of the Worms Water Works, conceived the idea of reducing the thickness of the fine sand and consolidating it into slabs in order to reduce the mass of the filter. He succeeded in producing slabs of artificial sandstone each three feet three inches square by three and nine-tenths inches thick by cementing together fine sand with a readily fusible silicate. These slabs were screwed together in pairs, having between them round the edges a layer of cement, so that a hollow space was formed, into the side of which a metal pipe was inserted. It has recently become possible to make the slabs all in one piece, and thus avoid the necessity of joining two slabs together. Any number of these filter cells can be placed together side by side in a vertical position, and the water surrounding them is forced into the central narrow place, the hydraulic head causing it to pass through the three-inch walls of the chamber.

Various methods of working the filter when the collecting pipe for the filtered water is above and below are given. The cells are grouped together with so-called batteries, and provision is made for isolating the producing of each battery for testing purposes. A series of experiments has been carried out on these sandstone filters as compared with ordinary sand filters, with the result that they are equally good as regards purity of the effluent and much superior if the yield for a given area is taken into account. The slabs are made by heating together at a temperature of 1,200 degrees centigrade fine sand from the Rhine and finely ground soda water bottle glass. The plant at Madgeburg, which consists of 720 cells and yields 792,000 gallons per diem, has given very satisfactory results. Smaller plants on this system are in operation at Kochan and Audermach, and an experimental filter of sixty cells is being erected at the Berlin Water Works in Lake Mugget.—Providence Journal.

Pavements made of granulated cork mixed with asphalt have proved successful after two years' trial in London and Vienna. They are never slippery, are odorless, and do not absorb moisture, besides being clean, elastic and lasting. Near the Great Eastern station in London, the wear in two years amounts to about one-eighth of an inch.

From the inception of the system of granolithic sidewalks in 1889 to 1895, there were 80,383 feet, or over fifteen miles, laid in Ottawa, at an actual cost of $138,359 91. In 1896 the total length constructed amounted to 53,041 feet, or ten miles, being two-thirds of what had been done in the previous seven years. The cost amounted to $63,514 56, showing a very considerable reduction in the cost as compared with previous years.