Every person who shall erect a new domestic building shall construct in the wall of each storey of such building which shall immediately front or abut on such open spaces as, in pursuance of the bye-laws in that behalf, shall be provided in connection with such building, a sufficient number of suitable windows, in such a manner and in such a position that each of such windows shall afford effectual means of ventilation by direct communication with the external air.

PROVISIONS WITH RESPECT TO THE CONSTRUCTION OF PRIVIES.

Bye laws.—Every person who shall construct a privy in connection with a building, and shall construct such privy for use in combination with a fixed receptacle for filth, shall construct or fix in or in connection with such privy suitable means or apparatus for the frequent and effectual application of ashes, dust, or dry refuse to any filth which may from time to time be deposited in such receptacle.

He shall construct such receptacle so that the contents thereof may not at any time be exposed to any rainfall or the drainage of any waste water or liquid refuse from any adjoining premises.

He shall construct such receptacle of such material or materials and in such a manner as to prevent any absorption by any part of such receptacle of any filth deposited therein or any escape, by leakage or otherwise, of any part of the contents of such receptacle.

He shall construct such receptacle so that the bottom or floor thereof shall be in every part at least *three inches above* the level of the surface of the ground adjoining such receptacle.

Dr. Fred. W. Barry concludes his reports with the following words:—

It will have become evident that eleven years of administration by the Local Board have been of little profit to Rawdon township. Beyond maintaining the efficiency of the main roads, all practically that the Local Board has done has been to construct one sewer for the purpose of silencing a particular complainant, and to draw up a code of bye-laws which has not been enforced.

As to Bye-law 54, windows have not even been provided in the side walls of the back-to-back houses which are situated at the ends of the rows.

Actual state of things.—The privies are so constructed as to effectually prevent the application of ashes, etc., to the excreta.

The receptacles, which are not cemented, are constructed with walls of porous brick, and the bottoms of flag.

The receptacles are in all cases constructed so that the bottom is from 6 to 18 inches *below* the level of the surface of the ground.

THE SMOKE NUISANCE.

A Report by DR. JAMES NIVEN, of Oldham.

A PROPOSED REMEDY.

THE Vice-chairman, and Councillors Waddington, Hawkins, S. Smith Brierley, Taylor, Jackson, and J. Smith, accompanied by the medical officer, visited Bolton with a view to see Mr. Herbert Fletcher's mode of dealing with black smoke. They were cordially received at the Ladysore colliery by Mr. Fletcher, who accompanied the committee, and explained his method (Vicars's patent, made by Cass, of Bolton). The material burned was the waste coal, which is usually thrown away. This was shovelled into a funnel-shaped box communicating with the fore part of the fire. The bars of the furnaces, eight in number, were moved by apparatus worked automatically by steam. In moving forwards the bars move *en bloc*, carrying with them a supply from the funnel-shaped box. After a sufficient delay to allow this supply to undergo a coking operation the bars move back again two by two, in such a manner that the coked recent supply is left behind. A new supply is then dropped into the fore part of the fire as the bars again move forwards, and the cycle is repeated. By this means the gases from the newly-coked supply are made to pass over the back part of the fire, and are ignited. The partially-coked material is shoved backwards by degrees, and what little carbon is given off is burned completely. In spite of the character of the fuel no smoke was seen issuing from the chimney. So inferior is the coal thus burned without smoke that 100 tons yield about 30 tons of clinkers. The waste clinkers fall on the back of the bars into a catch pit, from which they are extricated by the stoker by means of a long rake, a plan which dispenses with the necessity of cleaning out the furnace. The committee were greatly pleased with what they saw. It ought to be mentioned, however, that the cost of fitting one boiler with the necessary apparatus would be about £90. Mr. Fletcher lays no claim to the plan he employs. He is a town councillor in Bolton, and a sanitary enthusiast. He wants to make Bolton a suburban residence, and is certainly making some headway. One advantage of using his method of consuming the smoke appears to be that the same amount of power can be got with an inferior coal. It is doubtful, however, whether any material saving could be effected here in that way. But the Sanitary Committee can assuredly point to Mr. Fletcher's method as one which would meet with their requirements, in cases where it may be necessary to point out the course to be pursued in abating smoke. Subsequently to this visit Mr. Fletcher was good enough to give a lecture at the Free Library on the Smoke Question, in substance the same as his excellent lecture sold by John Heywood, of Deansgate, Manchester.

It was felt, however, that it was not sufficient to see these results achieved at a colliery, but that it would be well to obtain the results from cotton mills, and the Sanitary Committee, therefore, paid another visit to Bolton, which was reported upon by the vice-chairman (Mr. Councillor Norton) as follows:—

On Friday we visited Bolton to inspect some of the smoke-consuming apparatus adopted in that town. The first place to engage our attention was Messrs. Cannon's mill, where we found three boilers working with Juckes' patent furnace. This is an old system, and consists of heavy, cumbrous chains of cast-iron links, slowly moving inwards to the fire, carrying with it the coal to be consumed. It is scarcely necessary to say much about the system, as the experience of years has shown it to be costly in the first instance, and troublesome to keep in order, and it has gradually been discarded on this account. It does, however, burn the smoke. Passing from there we next visited the extensive works of Messrs. Musgrave, containing 350,000 spindles. There were three chimneys, and from only one was smoke issuing, and this we found to proceed from hand firing. Mr. Musgrave, with great kindness and patience, showed to us the various boilers, with different apparatus attached, and gave, as the result of 17 years' experimenting with various apparatus, that no system can or will be perfect with bituminous coal that is not arranged on the coking system. This was described by Dr. Niven in his last report, and again by Mr. Fletcher in his lecture at the Free Library. Cass's arrangement, as seen at the colliery of Mr. Fletcher, had 10 ft. bars, and comparatively a slow fire. Vicars' (at Messrs. Musgrave's) had 4 ft. bars, with air supplied through a perforated front plate. There were also side slots for the same purpose. This arrangement makes a very fierce fire in a short space, and as there is some danger that the further end of the fire-bar might be burned away, a number of jets of steam continually play upon them. The accumulation of cinders that fall over the end of the bars makes up the connection between the bridge wall and the under side of the bars, and prevents cold air getting into the flues. Such, in substance, is the arrangement of Vicars, and also of a Mr. Hodgkinson, whose first apparatus was started only a few hours before we arrived. These machines are very well made. Our last visit was to Mr. Crook's mill, where we found four of Sinclair's patent stokers at work. The principle of operation is the same as the others, sliding bars and coking the coal as it enters the fire. The details are, however, different and simpler; the fire bars are also longer, being 6 ft. 6 in., and require steam jets, but they were seldom now in use. The under part of the furnace is made up by a door, as in Cass's, which can be opened to draw out the ashes. The bars are operated by cranks instead of cams as in other systems, and one crank works two bars. The one

of the two is connected with the other by a slot and pin, thus continually breaking the connection by a very simple arrangement. By this means only one-half the number of cranks are required in proportion to the number of bars. Whether it was from the quantity of coal dust about or not, all the apparatus was creaking and making a noise that suggested something wanted oiling and a wear and tear of material, but the stoker was really so simple that it is not likely to cost much in repairs. I find, on inquiry, that the bars last only two and a-half to three years, which is equal to the ordinary furnace lasting five or six years, as they have two lengths of bars. It may be put down, as a rule, that the shorter the bars, the less will be the life of the bars. An intense fire in a short space has also the disadvantage (unless extra precautions are taken) of more wear and tear of the boiler. There was a great want of finish in Sinclair's apparatus compared with the others, but it was certainly less complicated, and seeing that the boilers were consuming about 32 tons per week without smoke, it was evidently a very practical and successful example. All these coking arrangements have, however, one defect—that they cannot be readily hand-fired if required. The cost of this kind of stoker is rather high. Vicars' and Hopkinson's amount to £100 and Sinclair's to £70. Experience alone can tell us the defects, if any, of this system of their economy as coal consumers. We cannot speak, but doubt not they will hold their own with any other mechanical stoker. I may say, in conclusion, that Mr. Sinclair has offered to put on any boiler, for testing his principle, one of his apparatus, free of cost, for a trial of two or three months, with the expectation that it will be found so satisfactory, that anyone trying it will purchase it. As we have several examples of the sprinkler stoker, such as Proctor's, in our own town, we did not visit them in Bolton.

It will be seen that the machines mentioned in these accounts of the visits to Bolton all have the peculiarity that the coal is coked at the forepart of the furnace, the gases disengaged being consumed as they pass over the incandescent mass further in. The coked coal subsequently burns without disengagement of carbon.

CONCEALMENT OF SCARLET FEVER CASES.—In the last report of Dr. Matthew Hay, medical officer of health for Aberdeen, he states that the epidemic of scarlet fever is on the increase there, and that he is sorry to be obliged to state that the spread of the disease is being greatly facilitated by the apparent concealment of cases, which are not being attended by a medical practitioner. Out of 84 cases dealt with by the Sanitary Department during the month, 23 were not attended by a doctor, and therefore not reported in the usual manner, but were discovered, for the most part accidentally, by the sanitary staff.