

DISCUSSION ON MR. E. W. CRACKNELL'S  
PAPER—"SANITARY IMPROVEMENTS."

MR. CRUICKSHANK asked Mr. Cracknell for a description of the air-tight joint mentioned in the paper.

Mr. Cracknell explained that the door was so constructed that the act of closing would introduce and force a small wedge under the pan, which, in turn, would be forced against a rubber ring, thus forming the joint.

Mr. Fischer, quoting the description of the improved pan, as described in the paper, pointed out that this closing-up air-tight of the pan was the very opposite of an improvement, because it simply meant that the offensive gases were prevented from escaping as they were generated; this was all very well, but it meant that when the pan was opened for use, the accumulated gases would come out in one concentrated volume which would be unbearable. A far better arrangement was to have a small escape flue or pipe carried from the closed pan to the open air so as to prevent this accumulation. As to the treatment of the material, about three years ago he had read a paper to them urging the adoption of a similar system, but merely as a temporary expedient. The Poudrette Company had now done what he had then recommended; but they had disregarded several great improvements which have been suggested since, and he instanced processes which were much superior. In the paper it was stated that all the evaporative matter was caused to pass through the furnace, but he could not understand how this could be done without putting the fire out. It was intended to destroy offensive and dangerous matter, but they proposed to pick out the rags, bones, etc., from the garbage, and this was simply preserving dangerous matter which was very likely to contain fever germs. Such refuse should certainly be burned. Referring to the

statement that by the adoption of this system, cost of waste-water drains would be very much reduced, as they could then follow the contour of the ground; in his opinion slop water could be most effectually dealt with by Shone's system of drains, and might be afterwards treated chemically, so that the effluent could be passed even into the Parramatta River creeks without offence. He believed that if Mr. Stayten's scheme for the drainage of the Western Suburbs was carried out the sewage farm would be in a bad state in a very short time. The whole process as described in the paper was behind the age, and much better arrangements were now known; he certainly would not advise any municipality to adopt the process described.

Mr. Briggs did not think there was anything very specially new in the process described. His idea was that the disposal of the manure produced would be the great difficulty. He was familiar with the process adopted for the London sewage at Erith; even there this difficulty occurred. Here manure was in many places unnecessary, but in England the demand was so great that guano was imported from thousands of miles distance and sold for £5 per ton, but even then sewage manure was difficult of sale, and how much more so would it be here? At the same time he considered this the proper system, viz.: To make the manure into bricks and send it into the interior to fertilise the land.

Mr. Henson asked Mr. Cracknell how he proposed to treat the slop water; it certainly required some treatment to prevent offence.

Mr. Cracknell explained that his paper was a general one, and had not entered into these details. He proposed several sewage farms at suitable points, and in some instances chemical treatment might be adopted, according to circumstances.

Mr. Shellshear said that there was one matter of very great importance referred to in the paper, viz., the treatment of house garbage, because much harm arose from this material. This could easily be burned in "destructor furnaces," and so rendered safe; but here it was allowed to collect outside the houses, and was removed once a week, only to be shot into heaps and allowed

to decompose. The burning of such material would cost no more than the present system, because the garbage contained sufficient combustible matter to burn itself. A furnace to serve one or more municipalities could be erected for £1,000, and he thought it not unlikely that this garbage contained sufficient combustible matter, not only to burn itself, but possibly the night-soil also. Sewers in some cases were a necessity; he, however, agreed generally with the remarks made by Mr. Briggs, but he was strongly of opinion that this matter of the necessity of furnace burning of house garbage could not be too often or too strongly urged upon the public.

Mr. Mestayer, on the invitation of the President, said that in 1872 he had some experience of the working of the Poudrette system in Manchester; at that time the Corporation of that place began to move energetically in the matter. They erected a "destructor" and plant for treating the liquid matter; the latter was separated from the solid, and evaporated to a syrup consistency, and the solids were treated in the "destructor" furnaces. These latter produced a large quantity of animal and vegetable charcoal, with other hard material. The hard parts were ground up for cement making, and the finer material was mixed with the evaporated liquid matter to form manure; but there the farmers had actually to be paid to take it away, and if that was the case in England he thought the difficulty of disposal would be greater here. There was no doubt that in England the pan system was disappearing in favour of water carriage. The latter system was not, in his opinion, the best everywhere, but it was certainly the best for large towns. As to the disposal of kitchen water, he was unable to follow Mr. Cracknell's meaning: drain pipes needed a fall just the same as sewers, and except in certain cases for outfalls there was no difference. The idea of bottling up gases in closed pans was not a good one, and he could not approve of it, because it seemed to him more dangerous; he thought the invention was no improvement.

Mr. Cruickshank said he thought the paper had been rather too severely criticised. Mr. Fischer was well known to have large experience on this question—no man in Sydney more than he—

but Mr. Cracknell had given them his practical experience of the working of this system with which he was necessarily familiar, and it was of great value on that account alone. He thought Mr. Cracknell's reference to the treatment of garbage brought up a most important matter, and he quite approved of Mr. Shellshear's remarks. It should be made compulsory to burn it, and furnaces should be erected of sufficient capacity to treat it without delay; such a regulation should be made the subject of legal enactment. As to Mr. Cracknell's paper, the point was whether the suggestions made were likely to be conducive to health. He, however, agreed with many of the remarks made by Mr. Mestayer.

Mr. Henson said that in putting down the sewers in the city of Sydney, they had come across old tips, which had been buried for seven or eight years, in which the putrescence was extremely disgusting. Such a state of things was deplorable, as the escape gases would find their way up through the interstices, and into the contiguous houses. A favourite place for a tip was an abandoned brickyard. This was a reprehensible course on account of the impervious nature of clay. He thoroughly endorsed Mr. Cruickshank's suggestions as to the provision of statutory compulsion, with reference to municipalities, and the combustion of house garbage. He had much pleasure in moving a vote of thanks to Mr. Cracknell.

Mr. Fitzmaurice said the method of taking away pans at present was not in any sense a success, and it certainly needed some improvement. He would like to know what quantity of manure would be produced from one ton of night soil.

Mr. Cracknell: From 1 to 2 cwt. Of course it could be burnt away practically to nothing.

The President said he gave the Poudrette and Ammonia Company every credit for their attempts to remove an existing evil, and he could speak from personal experience as to the completeness of the works and the absence of smell. He might also say that any gentleman was at liberty to visit the factory and satisfy himself. He had great pleasure in according the thanks of the Association to Mr. Cracknell for his interesting paper.

Mr. Cracknell, in reply to the various comments, said he proposed the pan in conjunction with a satisfactory deodorant. The destruction of the foul air from the sorting-chamber was easily effected by means of a small fan, and, as there was no noxious gas, it was all drawn into the furnace. They had sold all the manure yet produced, and there was a good demand for it at a better price than they had anticipated. He did not take credit for the originality of all the points touched upon in his paper; the Company had bought the invention from a gentleman, and he had effected some improvements. He remembered reading Mr. Fischer's paper some years ago on another phase of the same subject, and in it mention was made of producing ten or eleven pounds of manure from one ton of night-soil. He would conclude by inviting any gentleman to go out and see the works for himself.