

with modern plant and machinery and with a dilute sewage such as met with in American and Canadian towns, chemicals may be dispensed with altogether, there being sufficient dissolved oxygen in a weak sewage to effect the necessary treatment in the sewage tanks, previous to the final purification through Polarite beds. "Expert" rashly says, "Coal screenings are far more efficient and lasting when used as a filtrate, standing ahead of every other material, except charcoal made from wood or town's garbage." The only advocates of charcoal made from town's garbage are those interested in what was known in England some years ago as the Jagger & Turley system of carbonized refuse, which was tried at a little place called Baildon, the results being given in a paper read by W. Naylor, Esq., F.C.S., chief engineer inspector, Ribbles Conservancy Board, and published in *The Journal of the Society of Chemical Industry*, 30th April, 1894; the following is an extract, and will show the utter absurdity of attempting to deal with sewage by such a system:

"An impression has long been abroad among the local board 'Practical men' that coke is the proper thing through which to filter sewage. Reason and figures are of no avail with a sewerage chairman, who has set his mind on coke. It is an old established institution, handed down from father to son, and will die hard, but die it must, for (as shown by the Nelson figures, Nos. 32 and 33) it has no effect on dissolved organic matter at ordinary filter depths and rates of filtration. This coke, however, was pulled out and burnt during a recent coal famine, doing more good on that particular occasion than it ever did before. Its ghost, however, is now on exhibition at Baildon in the form of a 'Carbon' filter (so-called). Ash pit and privy refuse is here burnt, carbonized, it is claimed, and a filter made of the resulting ash. This forms a sand filter, but that is all, and if of sufficient area would perhaps in time form a nitrification bed. This is a process which at once appeals to the minds and pockets of local boards. No precipitants! No expensive filters! Refuse disposed of! No pollution! The impossibility, however, of its application on a large scale must be apparent at once to any but an outsider. The sewage treated at Baildon by this process is initially very weak. Its effect upon that is a mere screening effect, as shown by the results numbered 34 to 37.*"

TABLE OF RESULTS.

No. of sample	Description of sample	Taken by	Date	Examined by	Part per 100,000 albumenoid ammonia.
32	Nelson effluent before coke beds	Author	8th Aug., '92	Author	2.0
33	do. after	"	"	"	2.0
34	Baildon raw sewage	"	17th Jan., '94	"	0.345
35	" tank effluent	"	"	"	0.330
36	" filter	"	"	"	0.150
37	" clear sewage	"	"	"	0.130

It is evident that your correspondent, who styles himself an "Expert," is woefully ignorant, not only of the science of sewage treatment, but of what has recently taken place as regards the system he indirectly advocates, viz., carbonized town garbage, which after trial had to be abandoned at the town of Alton, Hampshire, England. Is not "Expert" connected with this carbonized garbage process. Otherwise his unjustifiable attack on the successful International system cannot be understood. Polarite filters are vastly cheaper than any other form owing to the powerful purifying powers of Polarite, which enables a high rate of filtration to be maintained and an effluent of a much greater degree of purity obtained than by any other system. The best proof of this is the number of places at which Polarite filters are in operation. Her Majesty's Government would not use Polarite in England and send it to all parts of the world for purification purposes, could equal results be obtained by coal screenings, coke or similar substances, which when tried, even on a small and closely watched experimental scale, are found after a short time to choke up and become useless, even when worked at so slow a rate of filtration as to render them enormously costly and altogether prohibitive. Polarite filters on the contrary are most economical and their efficiency is shown by the following, which is the opinion of Major Tulloch, C.B., R.E., late engineer in chief to the local government

*Reprinted from the *Journal of the Society of Chemical Industry* of 30th April, 1894. Being a paper called "Comparative results of some modern systems of Sewage Treatment," by W. Naylor, F.C.S., Chief Engineering Inspector to the Ribbles Conservancy.

board, on the Chorley Corporation Sewage Works, where the International Ferozone and Polarite process has been in most successful operation for several years:—

"I am highly pleased with what I have seen. The works are excellently managed and looked after, and reflect the greatest credit on the town council. The effluent from the depositing tanks is among the very best I have seen, almost perfectly clear, and with only a faint smell, while that from the filters is as clear as spring water and perfectly inodorous. These works I consider to be among the very best in the country. I know of none where better results are produced."

In view of the anonymous attack made on the International system by "Expert," I trust that your Canadian sense of fairness will ensure the fullest publicity to this letter, for the length of which I apologize, and remain, yours obediently,

FRANK CANDY,
General Manager.

109 Victoria Street, Westminster, London, England.
July 8th, 1898.

GARBAGE DESTRUCTORS.

Editor CANADIAN ENGINEER:

Our attention has been drawn to a letter signed "Expert" in your June issue, and this gentleman mentions the name of our Mr. Warner and the Patent Refuse Destructor, which we manufacture, and we think it necessary to make some comment upon the matter. It is evident to us that this expert is a very dark horse, as in the first place he does not acknowledge his name, and in the second place, he does not know what he is talking about. If he would give his name, facts and figures it could be handled in a proper engineering manner, but, it may be as well to mention that we manufacture several kinds of destructors, both with forced draught, by steam and air blast and with chimney draught, that we are up to the most recent destructors as regards high temperature, cost of refuse treatment and the amount of steam produced, and as some proof of our statement we enclose a reprint from a recent English newspaper showing that after full investigation our patent destructor has been accepted at the city of Bath, the city of Sheffield, and the town of Plymouth. We have since been informed that the town of Hartlepool has passed our scheme for a destructor of 6 cells, and we are at the present time building destructors in different parts of the country and abroad, consisting of upwards of 150 cells; this, we think, is practical proof that our schemes are not so old-fashioned as made out by "Expert." We can say quite as much with regard to the treatment of sewage as we are at the present time supplying a large number of the most important schemes, and carried out under the most eminent engineers including J. Mansergh, Esq., of Westminster; W. Santo Crimp, Esq., T. de Courcy Meade, Esq., Mr. Leiley, Messrs. Pollard & Tingle, of Westminster, and many other thorough engineers. In conclusion we can only say we think "Expert" will have to be a student for many years before he arrives at a possible chance of being a professional man, let alone an expert in matters he is talking about. Yours truly,

GODDARD, MASSEY & WARNER.

Nottingham, Eng., July 15th.

SANITARY PLUMBING.

Editor CANADIAN ENGINEER.

I have read with much pleasure W. M. Watson's article on the sanitary experiments at Cologne, and since reading it I have been able to prove the accuracy of the statement that sewage falling vertically through a soil pipe carries down with it several times its own volume of atmospheric air into the main sewer, which is a very important thing and tends to keep the sewers fresh and odorless. I have worked in three of the largest cities in England as a journeyman plumber, where interception traps on private drains or on drains serving rain water leaders were unknown. No more was sewer gas known to enter dwellings or pollute the streets in such quantities as to be injurious or noticeable. I have also worked in Toronto where traps are in general use for such purposes, and when doing repairing work I have found many chokes, and several buildings with the soil under the basement floors completely saturated with the liquid from excrement, which is a mishap that never occurred in any of the towns in which I worked in