experience of such a system he is unable to advance any opinion.

Resultant of Burnt Refuse.—The residue of the average refuse burnt may be taken as 33 per cent. of the original weight, and consists of clinker, ashes, flue soot and dust.

The flue soot and dust do not amount to a large proportion, and little difficulty is experienced in disposing of them for agricultural purposes or forming a base for disinfecting powder.

The popular means of disposal of the clinker and ashes is to use them as a substitute for stone, and so far as the author is aware, no other channel has yet been available. Whether they are used in combination with cement, lime asphalt or tar, clinker or ashes can never have the same properties as stone, and they are consequently most valuable in a district remote from a quarry. Where stone quarries are near a town it may be more economical in some sections of that town to use the "spawls" or waste from the quarries than to haul clinker from the destructor; hence in such a town the difficulty of making full use of the residuals is obvious. In Bristol the utilization of these products is carried out as described below, and the following table may be of some interest in showing the amount of material disposed of:—

Population, 1908 (estimated)	372,785
Length of highways in miles (about)	342
Refuse collected per annum, in tons	95,000
Refuse received at destructor per annum, in tons	32,216
Resultant of burnt refuse, in tons	10,313
Resultant of burnt refuse, if whole of collected refuse was burnt, in tons (estimated)	30,411
Resultant annually required for municipal purposes, such as road foundations, concrete slabs, pavements, mortar, etc., in tons	5,161
Resultant sold to the public, in tons	3,133
Total utilized, in tons	8,294
Percentage of resultant utilized	80
Percentage of resultant utilized, if whole of collected refuse was burnt	27

It will be observed that only 80 per cent. of the resultant of the burnt refuse now produced is utilized; this is due to the fact that there are several quarries within the city boundaries which form formidable competitors to the disposal of the product, but the question of making further use of the material is under consideration and probably the whole of the present output will be utilized. Assuming that Bristol was remote from a stone quarry, and the whole of the collected refuse was burnt, the most of the resultant that could be used would probably not exceed 15,000 tons per annum, or about 50 per cent. of that produced, but the remaining 50 per cent. could be absorbed in filling worked-out quarries, clay-pits and low-lying lands in situations where the tipping of crude refuse is prohibitive.

Concrete slabs for footways are made by three methods—viz., hydraulic pressing plant rocking machine, and hand labour in wooden moulds; window and door heads and sills, steps and other artificial stone dressings are made by hand labour in wooden moulds. The slabs are composed of clinker mixed in the proportion of three parts of clinker to one part of Portland cement; the slabs are faced with granite chippings in the proportion of three parts of chippings to one part of Portland cement:—

One ton of clinker will make 16 superficial yards of concrete flagging.

One ton of granite siftings will face 60 superficial yards of concrete flagging.

One ton of 2-inch flags is equal to an area of 10½ yards superficial.

A series of absorption and breaking tests were recently carried out, but so many conflicting results were obtained that it has been found necessary to considerably extend them if they are to be any guide; the most reliable test, however, is the daily use of the materials in the purpose for which they are intended. That concrete slab pavements largely composed of destructor clinker are satisfactory has been fully proved in Bristol, about two miles being laid each year. Some of the pavements have been under heavy traffic for more than twelve years, and are still in good condition, which is more than can be said for some Pennant flagging in use for the same period.

Hydraulic Press.—This plant consists of two rams, one forcing the filled mould under the top bed and the other applying the pressure. The mould is then withdrawn from under the top bed, turned over, and the slab is dropped on to a trolley and run out to the drying shed. The pressure on each slab is two tons per square inch. The area of slabs made in one day of nine and a half hours is 97 superficial yards, and the cost of production 65 cents per yard, inclusive of first cost, and depreciation of, and repairs to, the machine.

Rocking Machines.—These are the invention of the works superintendent, Mr. W. H. Baker, and consist of an iron perforated mould, mounted on a cam shaft; by turning the shaft a rocking motion is given, this allows of the surplus water filtering through the perforations, secures a homogeneous mixture and a thorough consolidation of the materials. The area of slabs made by one machine in a day of nine and a half hours is 30 superficial yards, and the cost of production 35 cents per yard.

Hand Labour.—Slabs and building dressings are made in wooden moulds by hand, the cost of production being 55 cents per superficial yard for slabs and 70 cents per cubic foot for dressings. Manufacturing paving setts by mixing the clinker with asphalt is now being tried in an important borough in London, but as this is still in an experimental stage no data is yet to hand as to the success of the process.

Brickmaking has been in operation at West Hartlepool for some time, and from some valuable information given by the borough engineer, Mr. Nelson F. Dennis, Assoc. M. Inst. C.E., the following facts are given:—

Six per cent. of slaked lime is used in the manufacture.
Crushing test per square foot, 218 tons.
Absorption of moisture by weight, 7 per cent.
Cost of making bricks per 1,000, $4.25.
Total cost of plant and buildings, $15,000.

They have been used in building manholes on sewers, stable premises, and extensions of the electricity station, but their general use in external work is not recommended.

In contributing these few notes the author has endeavoured to show that, as in most questions affecting municipal work, local conditions are the predominating factor; but probably in every case where town refuse is burnt in a destructor there is ample scope for development in utilizing the residuals beyond what has already been accomplished. It is suggested, however, that this fact alone is not a sufficient deterrent to the installation of a destructor, as the outstanding feature of its use is the effectual destruction of matter which may be injurious to the public health, and as this may be accomplished in most cases at a total annual cost of not more than 4 mills on the dollar it is a justifiable expenditure.