

A COMPLETE SEWAGE DISPOSAL PLANT FOR A PUBLIC INSTITUTION.*

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Of course it is impossible to bring before your notice any one complete system of sewage disposal for a large isolated building, and say that such is the best or only efficient system applicable to all such buildings. Just as with reference to towns and cities, it is foolish to assume that any one system of sewage disposal is always suitable. Local conditions must always govern the choice of any system. While the scientist may say and prove that such and such systems will produce effluents which cannot be objected to either from the nuisance or the health point of view, there are many local engineering factors which may decide the choice of a system apart from the theoretic suitability.

The chief engineering factor is, after all, the question of fall or level between the outlet drain and the point of main outfall. Given plenty of fall which will allow of com-

too often sees only the scientific working and the results, without due consideration to particular adaptability, and when the engineer finds that he has to adapt this particular system of sewage to some particular location, he is, to use a slang term, "up against it."

In the above reference too much stress cannot be laid upon the absurdity of any tendency on the part of health authorities to dictate special systems of sewage disposal as being applicable without reference to local conditions. The medical officer or medical inspector may have in his own mind the fact that certain methods have, to his knowledge, given success; but, he has no justification for recommending such methods until he has become thoroughly familiar with the topographical and engineering factors which have particular application to the case in point.

This paper is not intended to be a treatise upon the various methods of sewage disposal which may be applied to isolated buildings, but merely a short description of a method which the author lately designed to suit certain conditions which came before him in connection with the Northumberland and Durham counties House of Refuge, at Cobourg, Ontario.

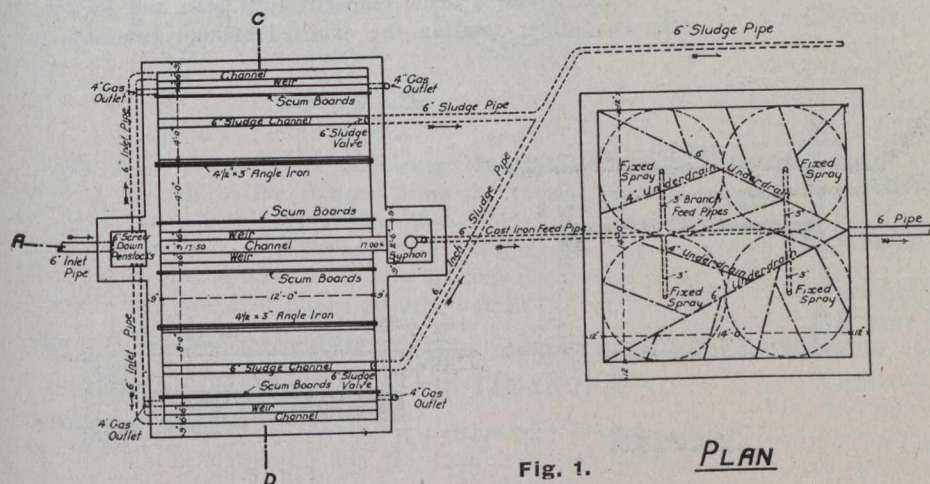


Fig. 1.

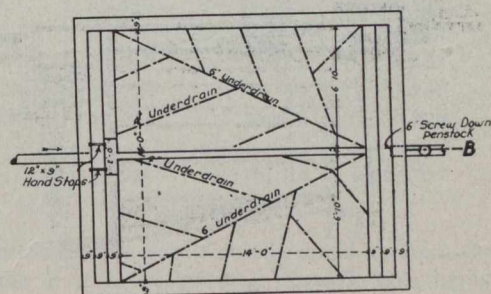


Fig. 4.

plete processes of sedimentation and filtration, we have at once ideal conditions in which our choice of a system is hardly limited. With ten or twelve feet of fall between the point of drainage discharge and the effluent discharge almost anything can be done. Local conditions mean something more, however, than plenty of fall, and may be said to include as follows:—

- (a) The quality of final effluent demanded.
- (b) The character of land and subsoil available for disposal works.
- (c) The volume and character of stream, river or lake receiving the final effluent.
- (d) The amount of surface of land available for works.
- (e) The vicinity of any projected works to other buildings.
- (f) The character of the building producing the sewage, whether used for domestic or trade purposes.
- (g) The economic working of any plant with reference to the supply of labor for operating purposes.

The above and many other minor considerations all effect the final choice of a scheme of sewage disposal.

We are apt to hear too often that such or such a system has proved most successful in such or such a location, and that this is, therefore, practically "the system of sewage disposal" to be relied upon. The purely scientific mind

By an isolated building is meant a building producing sewage without the use of any common or public sewer, and where it is necessary that the sewage be so treated that it will not produce any nuisance to the occupants of the building or to others in the vicinity.

The House of Refuge is located some considerable distance from the town sewerage system, upon rising ground which gradually falls to a clear water stream which eventually discharges into Lake Ontario. The stream forms the natural surface drainage for the land and valley in which the House of Refuge is built, and has continued ever since there has been sewage from this building to take the discharge. The stream flows through part pasture land and part urban land to the lake. Complaints have been made from time to time of pollution of this stream.

A few years ago a sewage disposal system was installed in a field south of the "House." This system included a small receiving chamber, and a septic tank. At one time the discharge from the septic tank was conveyed direct to the stream, but an injunction was obtained by a land owner, for prevention of nuisance and pollution of the stream. This injunction was followed by cutting off the effluent drain, and substituting a system of sub-irrigation by discharging the septic discharge by means of a syphon below the surface of the land at depths ranging from 1 foot to 1 foot 6 inches. It was not long before the land showed signs of becoming sewage sick, until last year the local nuisance and sewage odors from the land became unbearable.

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