detrimental, everything else was found to be in perfect good order and condition.

Aberdeen, Edinburgh, Leith and Portobello, all similarly situated on the sea coast, like Vancouver, and sewered as (avoiding all minute details) has now been described are shown, by the most reliable statistics, to rank amongst the very healthiest and most salubrious centres of population in the civilized world; but perhaps the most notable fact of all, which still remains to be mentioned, is that politics, in their case, are never allowed to enter into this question at all.

The corporations are composed of public-spirited business citizens of average or superior intelligence, who willingly devote their time and talents gratis to the work of the public, and with a single eye to the prosperity and good of the whole civic community.

They select, as the proper agents to carry out public work, involving large money expenditure, only the best, most capable and most reliable men that can possibly be had for that purpose, really competent men, trained to their work and possessed of practical experience in the execution of it -men, as well, of known probity, and unquestioned integrity, and the natural consequences follow in economy with efficiency, and the end-general satisfaction.

What, therefore, Vancouver needs is to take note of this indisputable fact, and proceed to act upon that knowledge, for "it is not given to any to neglect facts with impunity," else terrible punishment becomes the inevitable, and citizens the victims of the rotten "machine," "combine," system, we know and hear and read so much about.

This writer tells us in the same connection, about Toronto and of his canoeing experiences upon Lake Ontario, along the shores of which he says "at all seasons are to be encountered acres of floating fæcal refuse." I do not dare to dispute what this veracious gentleman professes to have seen, but I would just like to ask him, What all that has to do with us and our 15 feet tide, and the open ocean right in front of us? Is not that quite a different proposition?

Why talk nonsense like that here, where the case does not apply at all? Who ever saw "acres of floating fæcal refuse" anywhere in tidal waters, and why should we have to fly to that dernier resort and forlorn hope-the septic tank which may be, and doubtless is, the correct thing for places so unfortunately circumstanced as Toronto, Exeter, Manchester, Sheffield, and other inland communities, now being named, as having no option but recourse to this acknowledged imperfect, unsatisfactory and wholly tentative method of trying to rid themselves of their "crude sewage" evil-a perpetual source of trouble and annoyance to them? But why should we bother about what does not concern us?

Some seventeen years ago our neighbors, citizens of the Royal City, were worked up into a state of frenzied panic and for a short time suffered throes of agony, occasioned by the sudden advent in their midst of another false prophet and son of Ananias, who actually led them to beileve that, were their sewage to be emptied into the river, their salmonfishing and canning industry, on which they so much depend, would be forever ruined.

One writer, however, "Aquila," in the "Columbian," of that day, undertook to undeceive them, and this is what he said :-

"Westminster has a population of 8,000, and proportionately (to London, England), should give 360,000 gallons of sewage per day. The Fraser has a discharge of 16,938,-036 millions of gallons, or, one gallon of sewage to 47,050,102 gallons of actual discharge of the river. . . . All the sewage that Westminster will produce for a hundred years to come would not, therefore, disturb the stomach of the daintiest fish that swims; in fact, it would be entirely unrecognizable."

I do not know where he ("Aquila") got his figures, but they look to be correct, and I perfectly agree with him in his conclusions; and yet after all, what is the great Fraser River itself, ultimately swallowed up and lost within the bosom of the still greater Gulf of Georgia, and what that also, compared with the volume and immensity of the inconceivably vast, whole-globe-circling ocean beyond? What, again, the

utter insignificance of the sewage production of the city of Vancouver now, or a thousand years from now, put in comparison or contrast with either?

Why, that can be thought of, or spoken of only in such terms as microscopic or infinitesimal, even as those thousand years are viewed in like comparison with the aeons of eternity, Q. E. D.

J. W. Balmain,

Assoc. Inst. C.E. (1872).

North Vancouver, B.C., March, 1909.

RECENT DEVELOPMENTS IN ENGINEERING PRACTICE IN ENGLAND.*

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In presenting this paper I beg to place before you a few notes which I made respecting the latest development in engineering practice that came to my notice during a recent trip to Europe. It is not, of course, to be expected that this covers the wide field broken into by the best of European savants in their research work but rather is a practical and general exposition of more recent development as effecting the civil, mechanical and electrical engineering profession.

Electrical Ore Finding.-Foundation of the Invention.

The system is based on the discovery made by Sir William Preece, some twenty years ago, who when experimenting with wireless telegraphy, energised the earth with an interrupted current of low potential, and found, by means of a telephone circuit connected to earth with portable electrodes, that the geological conditions of the earth's crust, through which his currents were flowing, altered the shape and changed the intensity of his field.

Description of the Instruments Used.

The instruments used are of special design, and a great deal of money has been expended in perfecting them, some forty different types of instruments having been designed and tested continually at various mines. The whole apparatus is portable, and can be carried by two men. It consists of,--(1) A portable battery, which will supply sufficient current for about fourteen hours' working and is then recharged. (2) A transmitting apparatus made in two sizes, of which the following is a description of the smaller size used at Coniston. It consists of an induction coil adapted to deliver, when required, a very heavy secondary charge into a condensor, 40,000 to 50,000 volts, from which wires connect to portable electrodes, and having two spark-gaps-in-series and parallelinserted in circuit, which is completed by the earth. (3) The receiving circuit consisting of two telephone receivers, each of 500 to 900 ohms, resistance, connected to the exploring electro 'es (steel rods about 24 inches long), through a series parallel switch. These telephone receivers are constructed to respond to tuned waves and can be varied at will.

Field of Operations.

The extent of the field to be explored, in which operations can be conducted, without shifting the transmitting apparatus, is almost illiminitable, depending entirely on the size of the apparatus used. The earth can be energised for a radius of many miles, but, owing to the portability of the apparatus, it is obviously in most cases preferable to move it about than to employ larger and more expensive instruments, which would be required to energise a larger field.

Explanation of System.

On earthing the transmitting electrodes, usually about 100 yards apart, a field of force is created in the earth's crust something similar to an exaggerated field force from a large horse-shoe magnet. With a suitable amount of condensor in action and proper adjustment of the spark gaps, the telephones, connected to the receiving electrodes immersed in in the earth from 20 to 70 feet apart, give an audible note at least a mile away. Variations in lines of flow will be caused by underground deposits of metalliferous bodies. Lodes are electrically divided into two classes, those which are better

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