

matter; the tributaries before they enter the river bring down pollution from higher sources beyond the city's jurisdiction. Therefore, although the city of Providence has gradually awakened to the pollution of its own nest, the matter is of much broader character than merely local, and the State has taken the question up in a most thorough and exemplary manner.

With the purpose of determining the amount of pollution actually present, and, if possible, ascertaining the character and sources of the pollution, the State Board of Health availed itself of the advantages offered by the U.S.A. Geological Survey. By contract the two departments divided the expense. That the money so invested was successfully applied is shown by Mr. Stabler's report, which presents such complete data of value, which ought to act as a stimulant to both the manufacturers located on the streams as well as to the citizens of Providence, who may have wondered where the fault lay that their once fair stream of thirty years ago had become a filthy, opaque, foul-smelling open sewer. The assistance given by the manufacturers to the investigation shows a willingness of co-operation which is highly commendable.

The examination commenced in August, 1906, and the report was issued at the end of 1908. Comments upon plans for reducing the pollution of the streams are included, but detailed studies of manufacturing wastes and methods of purifying the same are reserved for a later report. Judging from the complete character of the present report, the succeeding one will be anxiously looked forward to.

Apart from its local value, the report certainly will appeal to engineers and others as a sample of how such investigations should be carried out.

The plan of investigation adopted was to divide the river and its tributaries into sections, at which sampling and survey stations were installed. In all, there were forty-two such stations. The highest up-river station, representing a length of river receiving the first source of pollution, and each section in turn representing the addition of some further source of pollution. Numerous samples of both the river's water and the polluting effluents were taken at each station, and a careful examination made of any action taken to purify or partly purify such effluents before they entered the river.

The result is a progressive diagnosis of the increase and cause of pollution of the river and its tributaries from source to seaboard. Every item of pollution is scrutinized and laid bare, so that the intelligent mind can readily separate the pure, virgin river water from its foreign and obnoxious contents.

The value of such a report lies in its thoroughness and practical utility. Not only are the sources of pollution enumerated, but their quality and quantity made manifest, and the work of thorough purification made easy. The Board of Health can now commence practical work of treatment with the full knowledge that such will be attended with absolute success.

Provincial Boards of Health in Canada would do well to take into consideration the advisability of adopting measures of so complete and minute a character. Systematic surveys and reports upon the sources of pollution of many of our own rivers would prove of the greatest value in stimulating a general interest in the preservation of pure streams and lakes. Haphazard dealing with certain towns and cities occasionally here or there is only a method of playing with a great subject, and is not based on either economic or scientific lines.

The State of Rhode Island are to be complimented not only on their endeavors with regard to their own

interests, but to the example which, it is to be hoped, other States will follow.

Mr. Herman Stabler is also to be complimented as the author of a plain, matter of fact, scientific and most admirably arranged investigation and clear, useful report.

### EDITORIAL NOTES.

Originally we intended to print the Index for 1908 separate, and send it only to those writing to the office, but the demand has been so large that we are sending one to every subscriber. The index this year is more complete than usual, as all articles are cross-indexed.

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During 1908 building operations in Victoria, B.C., have been very active, the total amount expended being above a million and a quarter, and not two hundred thousand below 1907, which was the record year.

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Lumbering operations in New Brunswick are improving, the rise in price of lumber in the United States encouraging a larger cut.

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Costs, cost systems and shop management covers a field which the graduate in mechanical engineering or the young man coming up through the shops find it hard to quickly master. To assist in meeting the difficulties encountered in this work Oscar E. Perrigo, of the Modern Systems Correspondence School, Boston, Mass., has outlined a course of instruction. Himself a practical shop man, a successful designer of machinery, and for a number of years in charge of shops, he and his corps of instructors are prepared to give practical assistance in the matter of costs and shop systems.

### COMING MEETINGS OF ENGINEERING SOCIETIES.

**American Society of Civil Engineers.**—January 20th, 1909, Annual Meeting, New York, N.Y. Secretary, Chas. W. Hunt, 220 West 57th Street.

**American Society of Heating and Ventilating Engineers.**—January 19-21, 1909, Fifteenth Annual Meeting, Engineering Societies Building, 29 West 39th Street, New York, N.Y. Secretary, W. M. MacKay, P.O. Box 1818, New York.

**Canadian Cement and Concrete Association.**—First Annual Convention and Exhibition, March 1-6, 1909, St. Lawrence Arena, Toronto. Secretary, A. E. Uren, 62 Church Street, Toronto. Manager of Exhibition, R. M. Jaffray, 1 Wellington Street West, Toronto.

**Canadian Society of Civil Engineers.**—Annual Meeting, January 28th, 29th and 30th, 1909, at Toronto. Secretary, Prof. C. H. McLeod, 413 Dorchester Street West, Montreal.

**Engineers' Club, of Toronto.**—January 21st, 1909, at 8 p.m., illustrated lecture, "The Manchester Ship Canal," by R. Dawson Harling. Secretary, R. B. Wolsey, 96 King Street West, Toronto.

**Illinois Society of Engineers and Surveyors.**—January 27-29, 1909, Annual Meeting at Chicago. Secretary, E. E. R. Tratman, 1636 Monadnock Block, Chicago.

**National Brick Manufacturers' Association.**—February 1-6, 1909, 23rd Annual Convention, Rochester, N.Y. Secretary, Theo. A. Randall, Indianapolis, Ind.

**Providence Association of Mechanical Engineers.**—June 22, 1909, Annual Meeting. Secretary, T. M. Phetteplace.

**Western Society of Engineers.**—January 20th, 1909, Extra Meeting. "Steel Castings," by R. P. Lamont, M.W.S.E. Secretary, J. H. Warder, 1737 Monadnock Block, Chicago, Ill.

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