

method of pumping, capacity of pumps, kind of strainer used, nature of ground through which wells will be driven, and probable flow of the wells. If collecting galleries are to be used, describe their construction.

Information Concerning Purification Plant.—The following information is required respecting the purification plant: The method of purification and a description of the units of the system; the rate of operation of each of the systems; the rate of operation of each unit of the plant; if any chemicals are used, the nature and quantity of each with a description of the appliances for adding the same to the water; a description of all conditions peculiarly characteristic of the water or locality which in any manner affect the design or operation of the system; a description of all special appliances used, any special methods of maintenance or operation of the plant, and the extent of purification expected or guaranteed.

If for purposes of fire protection it is necessary to provide by-passes, by which partly treated or raw water can be turned into the mains, they shall have valves upon them of such a character that they may be properly sealed by the State Board of Health.

The report should further include a description of the nature and extent of the area to which it is proposed to supply water, or which will ultimately be supplied from the system, the quantity of water to be supplied daily, and the population to be served, the portion of the system to be constructed at present and the minimum depth of pipe below the surface of the ground. A description of any provision for future units of pumping plants, filters, etc., should be given.

Should there be areas in the municipality or district which, on account of topography or for other reasons cannot be supplied with water, a definite statement to this effect must be made and the probable future supply of this omitted territory should be discussed.

Specifications.—Specifications and an estimate of the cost for the construction of water supply and water purification systems shall accompany all plans for new or original systems. With plans for extensions of existing systems or plants, specifications may be omitted, provided that these extensions are to be constructed in accordance with specifications filed with the original plan.

Extensions of Present Systems.—If the plans are solely for the extension of the existing system, only such information as is necessary for the comprehension of the plans will be required. This information shall, in general, conform to the above requirements for a complete system.

The application for approval of plans shall be made by the proper municipal authorities, persons for whom the work is to be done, or their properly authorized agents, upon blank forms, which will be supplied by the board.

The above regulations were prepared by C. G. Wigley, engineer of the board, under the supervision of R. B. Fitz-Randolph, chief of the Division of Food, Drugs, water and Sewerage, and adopted by the Board of Health of the State of New Jersey, June 23, 1913.

MEETING ON IRON AND STEEL.

A meeting of the American Institute of Mining Engineers under the auspices of the Iron and Steel Committee of the Institute, will be held in New York on October 16 and 17.

THE FINANCING OF ROAD ENGINEERING.

RECENTLY The Surveyor (London) published an article by Reginald Ryves, A.M.I.C.E., containing suggestions as to the policy which should be adopted in the United Kingdom for the raising of funds for road maintenance and improvement, and as to the manner in which these funds should be expended. Highway finance is a very different problem in Canada from what it is in the British Isles, where roads are short and population is dense; but there are many suggestions in the article mentioned which Canadian highway engineers will find practical.

The papers contributed to the Third International Road Congress on the subject of highway finance do not admit of summary in a form conveying correct ideas as to the merits of different methods of raising and applying revenue for road construction and maintenance; the reports are, nevertheless, very illuminating if we study the methods pursued in each country with due consideration for the prevailing circumstances. In nearly all countries the financing of road construction and maintenance is closely bound up with or is greatly influenced by the general principles of taxation adopted, and beyond this the methods followed depend very much upon the stage of development which the road system has reached. In some countries considerable sums are raised by the taxing of vehicles and from tolls, and in some cases payments are exacted from persons who habitually, or occasionally, use the roads in such a manner as to cause unusual wear and tear. In India vehicles are taxed and tolls are collected, and in some parts of that country the sums raised from tolls collected by the district boards are not only sufficient to defray the expenses of maintaining the roads, but leave considerable surpluses for other purposes. Such a tax is not more unreasonable in principle than the tax in this country upon certain classes of users of postal services, who pay much more than the cost of the service for the benefit of the country at large.

The expediency of any system or of particular measures depends upon the relations otherwise established between local and national finances, which may vary greatly, the national treasury being, in some countries, largely replenished by contributions from local taxation.

We have also to consider the extent to which the roads are used by certain groups of traders as well as in general trade and commerce, the manner in which the population is distributed, and the nature of their occupation. The equity of any particular system also depends upon whether the soil and climate, taken together, are much more favorable to road maintenance in some localities than they are in others. In countries in which the climate is much the same in all parts, and where the geological conditions are equally favorable as regards the cost of maintaining roads, and where, further, the population and local resources are fairly evenly distributed, it may be equitable and economical to charge the local authority with the cost of maintaining all roads, even when some of these carry a large proportion of through traffic.

When, however, the main roads traverse varying strata and areas differing considerably in climate, and where the population is unevenly distributed, and is engaged in many different callings, it is not equitable to charge the local authority with the cost of maintaining

*The reader is referred to an article in last week's issue descriptive of the Road Board and its methods of financing.