

be desirable for other reasons, probably lasting several times as long as a steel reservoir; still, it would probably leak and the local papers might occasionally alarm the people with tales of its rapid deterioration; but they should not be alarmed by this. It was with this idea of probable leaking that the Waltham reservoir was built, costing about ten per cent. less than a steel one. At first there was considerable seepage and the lime began to appear on the surface so that stalactite formation became very noticeable. After a few months' use the moisture was very much reduced so that there was practically very little seepage; and while there is now considerable seepage when the reservoir is being filled, it would be practically impossible to collect any amount of water from the outside walls if it were kept full all the time. In this reservoir also it was noticed that the greatest seepage has been where the sun shines brightest; there being almost none on the north wall.

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### CONTROL OVER STREAM POLLUTION.

Additional control over stream pollution, sewerage and sewage-disposal systems in New York State has been granted to the State Commissioner of Health by recent amendments to Chapter 49 of the Laws of 1909. While several of the existing sections have been amended, these amendments are chiefly for the purpose of bringing the Act as it previously stood into accord with new section, which is substantially as follows:

"Order to discontinue pollution of waters. Whenever the State Commissioner of Health shall determine upon investigation that sewage from any city, village, town, building, steamboat or other vessel, or property, or any garbage, offal or any decomposed or putrescible matter of any kind is being discharged into any of the waters of the state, which shall include all streams and springs and all bodies of surface and ground water, whether natural or artificial, within or upon the boundaries of the state, and when, in the opinion of the State Commissioner of Health, such discharge is polluting such waters in a manner injurious to, or so as to create a menace to health, or so as to create a public nuisance, he may order the municipality, corporation or person so discharging sewage, refuse or other matter, to show cause before him why such discharge should not be discontinued. A notice shall be served on the municipality, corporation or person so discharging sewage, refuse or other matter, directing such municipality, corporation or person to show cause before the said State Commissioner of Health on a date specified in such notice why an order should not be made directing the discontinuance of such discharge. Such notice shall specify the time when and place where a public hearing will be held by the State Commissioner of Health and notice of such hearing shall be published at least twice in a newspaper of the city, village, town or county where such discharge occurs, and shall be served personally or by mail at least 15 days before said hearing and in the case of a municipality or a corporation such service shall be upon an officer thereof. The State Commissioner of Health shall take evidence in regard to said matter and he may issue an order to the municipality, corporation or person responsible for such discharge, directing that within a specified period of time thereafter such discharge be discontinued, and such proper method of treatment or disposal of such sewage, refuse or waste matter be adopted as will permanently obviate such pollution of said waters by the municipality, corporation or person responsible therefor and as shall be approved by said commissioner. Such order shall not be valid until approved by the Governor

and the Attorney-General and when so approved it shall be the duty of the Attorney-General to enforce such order. Such means or method for the treatment or disposal of sewage, refuse or other matter must be executed, completed and put in operation within the time fixed in the order. The State Commissioner of Health shall have authority to require from the officials and persons responsible for the execution of such orders satisfactory evidence at specified times of proper progress in the execution of such orders, and may stipulate and require that certain definite progress shall be made at certain definite times prior to the final date fixed in the order. For the purposes of this article sewage shall be defined as any substance, solid or liquid, that contains any of the waste products or excrementitious or other wastes or washings from the bodies of human beings or animals. But this section shall not apply to refuse or waste matter from any shop, factory, mill or industrial establishment, not containing sewage as hereinbefore defined."

Besides bringing other portions of the Act into line with the new section, further amendments make more specific and forcible the modes of procedure to be followed in the prevention of stream pollution. Effluents from sewage-disposal plants are by the amendments brought within the jurisdiction of the commissioner.

It should be noted that the additional powers conferred upon the Commissioner of Health can be exercised only with the concurrence of the Governor and Attorney-General in case of an order to discontinue the discharge of untreated sewage into the streams of the state; also that the new section does not include trades wastes unless they contain sewage.

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### EXPERIMENTS WITH RED BEECH RAILWAY TIES.

Since 1896 experiments with red beech for railway ties have been made in the neighborhood of Eberswalde by the Prussian Ministry of Agriculture and Forestry, in connection with the Ministry of Public Works. The carrying out of these experiments was entrusted to the main station of the experimental section of the Forestry Department, in connection with the railway authorities of the Stettin line; and later with the central railway office in Berlin.

As regards the results of these experiments, and the lessons to be learned therefrom, Professor Dr. Schwappach has published a report, a concise résumé of which is here given.

- (1) Sound soft-hearted beech wood, impregnated with tar oil containing creosote, is a very desirable material for railway ties; and on main lines should last at least 25 years.
- (2) Sound red-hearted beech wood may be used for ties without any apprehension, if the area of the red heart does not amount to more than 25 per cent. for the entire cross-section of the tie, and the heart of the log does not come near the outside of the tie. Ties with gray-dyed heart are to be rejected.
- (3) In selecting the wood by the forestry officials care is to be taken that only sound wood is chosen for ties; rotten places, and especially at large branches, are to be avoided.
- (4) Especial attention must be given to thorough drying of the wood before impregnation.
- (5) In order to prevent splitting of the wood, the proper precautions must be taken at once after felling the tree. Letting the felled logs lie long in the sun in the early spring, which is often very dry, is especially to be avoided.