

## TAKING A CHANCE WITH AN UNSAFE WATER SUPPLY PROVES COSTLY

**I**MPERFECT disinfection of a portion of the public water supply of Xenia, Ohio, was responsible for the outbreak of 44 cases of typhoid fever in that city during the last few days of August and the first half of September, 1918, according to investigations made by representatives of the Ohio State Department of Health, as reported in the Ohio Public Health Journal. The fault, it was found, lay with a defective supply of bleaching powder used as a disinfecting agent.

### Typical Water Borne Typhoid

All epidemiological evidence disclosed by the investigation pointed to the water supply as the source of infection. Cases were widely distributed over the city and city water was used at home by all but one patient, who used it only at her place of business. A study of the occupations of the patients revealed no similarity in this regard. Milk, ice cream and fresh vegetables were used in varying quantities and obtained from many sources. None of the patients had eaten any raw shellfish recently before falling ill. No public gatherings had been attended by patients recently enough to be suspected as sources of infection. Contact infection as an important cause is ruled out by the facts that only eleven patients resided in homes where other cases developed either before or after the case in question and that only two households had as many as three cases each.

### Public Water Supply Privately Owned

The Xenia water supply is furnished by a private company. It is derived from two sources—a system of drilled wells southwest of the city and a combined surface and ground water supply obtained from reservoirs, springs and dug wells north of the city. The surface and ground water supply was installed in 1887 and remained in use after the drilled wells were installed in 1896, because the latter source was insufficient to supply the city.

Water from the drilled wells has always appeared satisfactory from a sanitary standpoint. That pumped from the station north of the city has been shown at several times to be unsatisfactory, in consequence of which a hypochlorite disinfection plant was installed in 1914. On the average two-thirds of the city's water comes from the drilled-well source and one-third from the disinfected supply, the amount pumped from the drilled wells becoming relatively smaller in dry weather. This variation makes it impossible to determine just what part of the city is being supplied from each source at a given time, but the presence of a large amount of iron in the drilled-well water makes a reasonable degree of differentiation possible.

### Hypo Below Guaranteed Strength

Disinfection of the water at the north pumping station had been carefully conducted, according to the report of the Department investigators, who found that bleaching powder had been added in definite, prescribed quantities for 2½ years. Analysis of water samples collected in the city, however, demonstrated that the water from this station was of doubtful and unsatisfactory quality, while that from the other station was satisfactory. This led to an analysis of the bleaching powder, which was found to be of one-fifth guaranteed strength.

### Liquid Chlorine Recommended

"Since this substance was guaranteed to be of proper strength," says the report of the investigation, "it follows that the undertreatment of the city water was purely accidental; nevertheless, it is significant that such a possibility always exists when disinfection of a public water supply is necessary to render it safe for domestic use. In order to avoid the recurrence of a polluted water being supplied the consumers at Xenia, the water company should abandon the existing supply at the Springfield Pike station (the surface and ground water source) and procure water of satisfactory sanitary quality from another source. In the meanwhile it is advisable that the company abandon its hypochlorite method of disinfection and employ the more dependable and up-to-date method of using liquid chlorine."

## CANADIAN PACIFIC CONSTRUCTION SCHEME

**D.** C. COLEMAN, western vice-president of the Canadian Pacific Railway, who has been at Montreal in connection with the betterments appropriations for the year, has given out the following statement as to the programme of the company:—

"The company will continue to follow the policy of making timely and prudent provision for the continually expanding traffic in western Canada, and for the maintenance of the property in the best possible condition.

"At Vancouver, the construction of a new ocean pier will be undertaken, and the necessary studies are now being made. When these are completed, the work of dredging and filling will be started immediately.

"New station building will be erected at Harding, Marchwell, Schwitzer, Rutland and Dafoe.

"The engine-houses at Weyburn, Moose Jaw and Cranbrook will be extended and the engine-house at Sirdar, B.C., will be rebuilt.

"The interior of the station at Medicine Hat will be remodelled with a view to securing better accommodation for the public.

"Coaling plants will be built at Raith, Ont., and North Bend, B.C.

### Trackage Extensions

"Additional trackage for handling train movements will be provided at High Bluff, Rosser, Fusilier, Stephen, Melita and Rosetown, and extensions made to terminal trackage at Portage la Prairie, Revelstoke and Vancouver.

"Locomotive boiler washout plants of the most modern design will be installed at Medicine Hat and Revelstoke.

"To accommodate the largest type of locomotives, new turntables will be installed at Moose Jaw, Field and Revelstoke.

"The work of lining the Connaught tunnel with concrete will be continued.

"An additional transfer barge will be built for Okanagan Lake, and an additional car slip provided.

"A permanent concrete floor will be placed in the stock yards at Fort William, and improvements also made in the stock yards at Moose Jaw.

### Bridge Work

"The work to be done on bridges will be most extensive. The most interesting work of this nature to be undertaken will be the replacement of the bridge over the Assiniboine, at St. James, and the filling of the great structures over Scissors Creek and Bear Creek on the Neudorf line, and the large bridge over the Battle River at Hardisty.

"At Winnipeg station the temporary wooden platforms in the train shed, which were put into service until the fill had reached its permanent location, will now be replaced with permanent mastic platforms.

"The station at Moose Jaw having proved inadequate for the traffic handled there, plans are now in preparation for a new building and the work will be undertaken this year. At Regina additional paving will be done in the local yards to permit more convenient teaming of freight, and there will be improvements made in the ash pit facilities to provide for the more prompt handling of locomotives.

"The usual generous provision is made for ballasting, steel replacements and improvements to the roadbed.

"Notice has been given that the railway will apply for an act in parliament enabling it to build six branch lines in Saskatchewan and one in Alberta. The latter is to be from Duchess northward. The Saskatchewan extensions are as follows:—From Archive to Wymark, from Fortune southeast for eighty miles, from Lenigan to Cumberland House, from Leader to Big Stick Lake, from its Weyburn-Sterling branch southwesterly, and from its Manitou Lake branch northwesterly to Whitford Lake. From other notices presented to the government it is evident that numerous branch lines are to be built in the west this coming summer. Applicants to parliament include the Western Dominion Railway Company, the Athabasca and Grande Prairie Railway Company, and the Northwest Route, Limited."