

OLEAN, *in* CATTARAUGUS COUNTY,
EXPERIENCES *a* TYPHOID FEVER EPIDEMIC



DURING the fall of 1928, Cattaraugus County was the scene of one of the most severe epidemics of typhoid fever experienced in recent years in any community of comparable size in the United States. The epidemic was waterborne and was confined to Olean, which with its population of 21,802 is the County's largest city, having control over its own water supply through a local board of water commissioners and administering its public health

affairs through its own local health administration, independently of the County Board of Health, which for more than a half decade has been conducting in Cattaraugus County a health demonstration in rural public health work. There were 238 cases of typhoid fever reported in the County during the first eleven months of 1928. Of these, 224 occurred during September, October and November. Of the total 238 typhoid patients, 205 were residents of Olean, and 33 were residents of other parts of the County, 18 of the latter having contracted the disease in Olean.

Conditions which resulted in the epidemic and responsibility for it were made the subject of an official investigation by Dr. Matthias Nicoll, Jr., New York State Commissioner of Health, at the request of the Mayor and the City Council of Olean, the Council subsequently expressing its gratitude to Dr. Nicoll for his inquiry and informing him that steps had been taken to put into effect several recommendations which he had based upon his findings. The Board of Aldermen instructed its Ways and Means Committee to hold local public hearings on the epidemic, and appointed a special committee to audit "claims presented against the City of Olean for damages sustained or expenses incurred or paid, by reason of" the outbreak. The Council accepted the resignations of the Olean Board of Water Commissioners and of the Health Officer of Olean, found responsible in whole or in part for the epidemic; and the Mayor appointed a new water board and a new health officer.

"The main water supply taken from Olean creek at North Olean and filtered and chlorinated, is and has been of satisfactory sanitary quality, but the water delivered from the auxiliary pumping station at South Olean was badly polluted for some time before the outbreak," according to Dr. Nicoll's report as summarized in the *Health News*, official publication

of the State Department of Health, in its issue of November 26, 1928. "An investigation of the cause of this pollution disclosed a break in one of the submerged suction pipes connecting the wells on one side of the Allegheny River with the pumping station, on the other. As the city discharges untreated sewage into the river above the South Olean pumping station, gross pollution was pumped into the City's mains and reservoirs. The quantity of chlorine added automatically to the water was insufficient to take care of this amount of contamination. Had daily tests for excess chlorine been made as recommended by the Department, the increased amount of chlorine required to produce an excess would immediately have been noticed. Fluctuations in the pumpage during July, August and September together with the findings of *Bacillus coli* in the water (9 out of 16 samples) should have caused an investigation to be made for a leak in the submerged pipe."

In February approximately 1,000 cases of gastro-enteritis developed in Olean, states the *Health News* in its issue of October 15. "The auxiliary supply was suspected and the State Department of Health recommended to local officials that samples of water from the wells be examined regularly when in use and that tests be made daily to determine the presence of the amount of free chlorine necessary for safety. In July a Department engineer visited Olean but found that the auxiliary supply was not then being used. He was told that its further use, except for fire protection, was not anticipated. However, pumping from this supply appears to have been begun again a few days later.

"On September 12, Dr. A. S. Dean, district state health officer located at Jamestown, received a letter from Dr. R. M. Atwater, county health officer, advising of the existence of another outbreak of gastro-enteritis in Olean. It was estimated that there had been 2,500 or more cases. Pumping

from the wells was immediately discontinued. On September 20 the city health officer reported that no new cases of gastroenteritis were developing. Nine days later typhoid fever cases began to be reported.

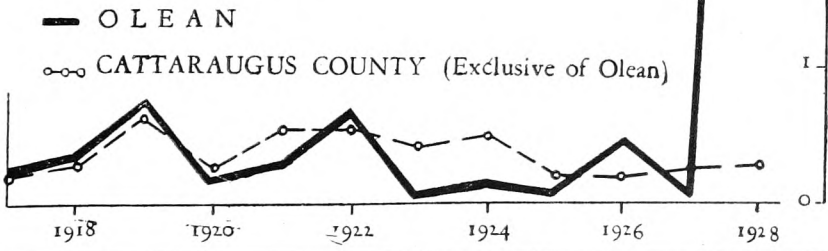
“On investigation, it was found that the auxiliary water supply had been used intermittently in June, July, August, and early September. Water samples, examined at irregular intervals, had given presumptive tests for *B. coli* but the results of these tests had not been noted in reports sent to the State Department of Health. Tests for excess chlorine had been made daily when the pumps were in operation up to September 1. However, in September, when much of the pumping was done at night, tests appear to have been made only on two occasions. Discharge of chlorine was supposed to be regulated automatically according to water pressure. Examination of daily pumpage charts revealed what appeared to be a record of a marked fluctuation in water pressure, not yet explained and apparently overlooked by the operator on two occasions and it is suspected that this fluctuation in pressure may have been responsible for reduction in the amount of chlorine applied.”

Commissioner Nicoll states further in the text of his report—“Section 46 of the charter of the city of Olean, prescribing the duties of water commissioners, provides as follows: ‘It shall be the duty of the commissioners to examine and consider all matters relating to supplying the city with pure and wholesome water. . . .’ Direct responsibility, therefore, for the waterborne outbreak of typhoid fever in Olean lies with the Board of Water Commissioners.

“First, because a submerged well was permitted to remain in the system. Second, because notwithstanding repeated recommendations by the State Department of Health that daily tests be made to insure the use of an amount of chlorine

sufficient to render the well water free from disease-producing bacteria, such tests were made only infrequently. . . . Third, because although the records of one of their employees during the summer indicated at intervals the presence of bacteria of sewage origin, no evidence is available that such findings caused any change in the ordinary operation of the system. Fourth, because the interruption and irregularities of the aciton of the pump, together with the results of the bacteriological findings in the water, did not cause the Board or its Superintendent to investigate the possibility of a leak or break in the piping system; and fifth, because when the break in the well pipe was brought to the attention of the Water Superintendent on September 10, he failed to notify the health officials of the city of the fact that the water throughout the city in pipes and reservoirs was contaminated.

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“Other, though less, responsibility is also attached to the local health officer,” Commissioner Nicoll continues.

“Notwithstanding that diarrhea had been prevalent in Olean since the middle of August, the city health officer seems to have been ignorant of the fact until it was officially brought to his attention on September 12. It is difficult to understand why he or his deputy who represented him during his absence September 7 to September 12, both practicing physicians in daily contact with their conferees, took no official cognizance of diarrheal disease involving several thousand persons within their jurisdiction, especially in view of the occurrence of a similar waterborne outbreak of diarrhea in February of the same year.

“Regulation 41-A of Chapter 11 of the State Sanitary Code requires the health officer to ‘exercise due diligence in discovering the occurrence’ of ‘an outbreak or an unusual prevalence of diarrhea’ and to report the fact immediately ‘to the State Department of Health by telegraph or telephone.’ The city health officer and his deputy failed to carry out the provisions of this section.

“Under the provisions of Section 20-b of the Public Health Law, Cattaraugus County has been constituted as a General Health District, with a county health officer duly appointed ‘with all the powers and duties conferred upon local health officers by any law or laws or by the Sanitary Code.’ Under paragraph 2 of this section, the Mayor and Council of the City of Olean duly ‘consented thereto.’ However, it seems to have been understood, if not formally agreed to, that the county health officer should not exercise jurisdiction in the City of Olean in any way except that he should direct the tuberculosis work done in the city and that the county laboratory should be available for city use.”

Commissioner Nicoll’s recommendations were that daily

bacteriological examinations of the water supply be made and that tests for excess chlorine be carried out at least twice daily; that a report of the findings and of the tests be forwarded daily to the county and city health officers, and if any contamination was discovered that it be reported immediately; that reports of any unusual prevalence of enteric disease should be made immediately to the State Department of Health and to the local water officials; that the South Olean pumping station be abandoned as soon as possible, and the capacity of the North Olean plant be increased to meet additional needs; that a professionally trained operating personnel with suitable experience in waterworks and sewage disposal operation be employed; and that sufficient appropriations be provided to insure the satisfactory maintenance of service. He also recommended that the county health officer should be authorized to act as city health officer, or the city health officer should act as his deputy in fact as well as in theory and cooperate with the county health officer at all times.

The Olean city authorities and townspeople were prompt in organizing the community's resources to control the epidemic. Under leadership of the Mayor and the local health officer, the local medical, civic and business groups gave whole-hearted cooperation to this end. The Olean Common Council has petitioned the State Legislature to authorize the issuance of municipal bonds in the amount of \$350,000 to defray costs incurred by the city health officer in meeting "all necessary hospital and nurses' bills and other expenses incident to the care and treatment of typhoid fever patients and to the prevention of the spread of the disease." A special committee on Emergency Hospital Facilities was appointed by the physicians of Olean, and two emergency hospitals were opened, thus providing a total of four at

which patients were received. Typhoid vaccine inoculations were given children in the schools, while other residents of Olean were inoculated by private physicians, and at a clinic maintained by the city health department.

Generous assistance was also forthcoming from the outside. Commissioner Nicoll assigned Dr. B. E. Roberts, epidemiologist of the State Department of Health, to duty in Olean. The Cattaraugus County Board of Health placed all of its facilities at the disposal of the City and State health authorities, enlarging the staff and equipment of the County Laboratory to meet the increased demand for its services. An hourly visiting nurse service was organized with nurses from the County Department of Health and two nurses from the Catholic Charities. The County nurses who were brought to Olean were used for bedside work, for follow-up on disinfection procedures, and as agents of the City of Olean in relief work. The County Health Department staff handled a considerable share of the clerical work. The American Red Cross, through its local chapter, organized the private duty nurses, over one hundred of whom were on duty at the height of the epidemic, many of them being procured from Buffalo and from Jamestown.

