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THE PROBLEM OF WATER SUPPLY IN DEMOLISHED CITIES

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Military operations in the region of the city of L. resulted in considerable destruction. Up to the present, the population returned to the city very slowly and irregularly.

The water-pumping station was not damaged; it draws upon water-bearing deposits of sandstone. The water is not chlorinated. Laboratory analysis of water samples from the central water-pumping station has demonstrated after a year and a half of observations that the physicochemical properties of the water do not fluctuate significantly.

From September 1945 to December 1946 only three tests were made at the filtration plant that did not meet the requirements of the coli titration standard. In this same period 442 samples from the water system were tested. In the analyses 74 departures from high standards were established according to the coli titration standard, constituting 16-17 percent of the total number of tests.

The establishment of the fact of the deterioration of the water in the water-supply system compelled us to take measures to ascertain the causes of this decline in the standard, and then to develop vigorous countermeasures.

To achieve this goal, the whole city was divided into sectors taking into account the characteristics of the city water-distributing system. In each sector a station was designated for the collection of samples for laboratory examination.

The number of sampling stations varied from 10 to 13, which for a city

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having a prewar population of less than 100,000 must be considered fairly large. These sampling stations were located in various districts of the city. The water was taken from designated taps of public institutions and enterprises situated in these districts. The sampling stations were numbered.

From an analysis of the data obtained by us it can be established that there was no connection between rainfall and the time and place of appearance of an unsatisfactory coli titration standard (below 100). However, water from a tap did give poorer /test/ results the farther the tap was situated from the main water system.

In September 1946, in accordance with our suggestion, cleaning of the dead ends was systematically begun. Improvement was evident in a general increase of the coli titration standard in the system.

A number of consultations with workers of both the water system and the People's Commissariat of Economy (Komkhoz) permitted a more accurate picture of the relationship between the coli titration standard of the water and the times of release of water to various parts of the city, as well as the cleaning of the system. Because water was in short supply it was turned on for only a limited number of hours each day. As a result of this, stagnation of water occurred in terminal sections of the water system, and possibly there was back-flow as well. In the case of a demolished city, every uninhabited house and street must be considered as terminal sections of the water system.

Stagnant water from terminal sections is periodically pumped into the main water system, and at the time of the next regular release of water by the pumping station, it is merely diluted to a certain extent.

Conclusions

1. The water-supply situation in cities that have suffered destruction requires systematic bacteriological tests of the water, particularly in the outlying sections of the city.

2. In order to provide water safe for consumption the system should be cleaned systematically and as frequently as possible. It should be chlorinated periodically, depending on the results of analyses.

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