

preventive inoculation and vaccination and serve in the municipal dispensaries. In every phase of laboratory activity the student will be given experience. His record in this practical work will count toward his general scholastic standing.

It requires no professional mind to understand the manifold virtues of this proposition. The common complaint against young college graduates, particularly those who seek to break into social service, is that they lack first-hand experience. It is customary to teach hygiene by lectures and recitations, rarely by observation and almost never by the laboratory method. The newly-made physician has some practical knowledge of the *methods of sanitation*. In other words, a part of his education must be gotten after he has left college. And though it is still admitted that contact with the world in the pursuit of the daily bread is the greatest teacher, there is no gainsaying the fact that a doctor, of all men, should have the highest possible professional training. The University of Cincinnati plan, then, represents a clear gain. It gives the student all the lectures he had before and in addition confers upon him a practical acquaintance with the problems which he will find confronting him in the future. The benefit to the community is beyond all accounting in terms of dollars and cents.

Underground Waters of Southern Minnesota.

The United States Geological Survey has just issued Water Supply Paper 256, *Geology and Underground Waters of Southern Minnesota*, by C. W. Hall, O. F. Meinzer, and M. L. Fuller. The region described in the report includes approximately the southern two-fifths of the State of Minnesota and has an area of 28,265 square miles. Aside from the Cities of Minneapolis and St. Paul this is essentially an agricultural region.

The purpose of investigation, which was conducted in co-operation with the Minnesota State Board of Health, was to determine to the fullest practicable extent the principal facts in regard to the underground waters, their quantity, head mineral quality, sanitary conditions and

depths beneath the surface, as well as the best methods of drilling to them and finishing wells for their utilization and to consider all other questions relating to their recovery for human use.

A question in which nearly all communities are interested, says the report, is whether flowing wells can be obtained by drilling to considerable depths. Much blind optimism prevails in regard to this subject. Many towns have at one time or another borne the expense of drilling at places where there was no real prospect of obtaining flows and others are likely to suffer in the same way unless they are properly informed.

It is by no means necessary that every village or city should drill a deep well in order to learn whether flows can be obtained. Even where there are no prospects for flowing wells, the question of head is important. If the water rises higher from the deeper than from the shallower beds it is important that the community should know it. The information obtained as the result of the investigation gives ample data for determining definitely for most communities whether or not there is any prospect of obtaining flowing wells. These data are given in the report for each county separately so that the well driller may determine with some degree of accuracy to what depth he must go to obtain water. The investigation developed the fact that the domestic water supply for most of the village inhabitants of southern Minnesota is derived from shallow, open wells, which in settlements without sewer systems are necessarily near one or more privies or cesspools. An examination of eleven of these wells situated in as many different villages showed the presence of bacillus coli in ten of them—an indication of contamination by human or other animal excreta. This situation is an argument for higher ideals of cleanliness and sanitation in villages embraced in the investigation. Every community, it is stated, should aim to procure an adequate source of water supply, to install an efficient system of waterworks with mains reaching every home, and to construct an approved and extensive system of sewers. The report states that the people should be educated in the elementary principles of sanitation. When once they compre-