

It will be found that greater uniformity in the negatives from the sections can be gotten by using an artificial light rather than natural light; a Wellsbach incandescent gas lamp gives good results.

SANITARY SCIENCE IN THE MODERN COLLEGE. BY SEVERANCE BURRAGE.

The modern college should reflect in its curriculum the best, the most advanced thought of the time on the physical as well as the mental and moral life of the people. Many old habits and customs which have been generally adopted into family life have been curtailed, leaving room for more modern ideas and discoveries.

One of the most profound changes in the latter part of this Nineteenth Century has been in our attitude toward the physical welfare of mankind, especially in regard to the causes and prevention of disease. This is no longer a matter of importance to the medical profession alone; in fact the physician deals mainly with the cure of disease, not its prevention; therefore, in order that the coming generation shall be prepared to meet and grapple with these vital problems, to apply the new ideas intelligently they must become familiar with the fundamental principles of sanitary science. This is particularly true in view of the extended growth of community life. The decline of individual responsibility, and the increase in one form or another of socialism, makes the necessity for public supervision doubly important. Public supplies are public dangers, and, therefore the supervision of them must be expert. The expert must be intelligent, and perhaps more important still, he must be backed by an intelligent public opinion. Here, then, are the two great vacancies to be filled—the expert sanitarian and the well informed citizen. No college should send out its students without some insight into this new science of the public health. Whether the course be compulsory or elective may be a matter of opinion, but the important bearing of such a training must be evident. This training should include a certain knowledge of sanitary chemistry, as applied to the analysis of air, water, milk, butter, cheese and other foods, as well as the principles of bacteriology, showing the importance of cleanliness in the home, in the public places of the community, and in the general habits of living. If the student is made to see, by actual laboratory experiment, that the air is full of dust, much of which is living matter in the form of mold and bacteria spores; if he examines a sample of milk and finds a million or more bacteria, and if he understands that wherever there is decaying animal or vegetable matter, there are myriads upon myriads of living microbes, then there is

one more citizen, who, after he graduates, will insist on a neatly kept house in a clean, healthy neighborhood; who will, we hope, find out who his milkman is, and what kind of milk he and his family are drinking. Then, moreover, he will understand the importance of having, in the thickly settled communities, efficient men, free from politics, to look after the public supplies of water, ice, milk and meat; the removal of garbage and disposal of sewage; the ventilation of public buildings and the cleaning of the streets, the isolation of contagious diseases, etc.

Aside from the importance of this work as shown above, it is a most valuable training for the young man or woman as a laboratory course. Dr. George M. Sternberg, Surgeon-General of the United States Army, in his address given in September before the Georgetown Medical College, gives very much importance to bacteriological work as a most excellent exercise for teaching the student to observe. This was meant particularly for the preparation of men for the medical profession, but accurate observation is desirable for, and often woefully lacking in our modern citizens, both men and women. The many delicate tests, chemical and physical, that are essential in modern bacteriology give exceptional opportunities for a training of this kind. The careful manipulation necessary in making microscopical preparations of bacteria, diseased tissues, etc., gives ample chance for the training of the hand as well as the eye.

The study of vital statistics, which to a certain extent should enter into a course of this kind, would necessarily show the need of accurate systems of registering births, deaths and cases of infectious diseases.

Much has been done in the last ten years toward establishing such courses in sanitary chemistry and biology, and the recent gift of Miss Culver to Chicago University, providing especially for departments in sanitary science and hygiene, shows clearly that the subject is not only in the public eye, but that its importance is even beginning to be realized. Indianapolis is alive to the subject, having this month passed the ordinance providing for the supervision of the milk supply and inspection of the dairies.

We see, then, that the rapid development of applied biology and hygiene is calling for and must have intelligent, well-trained men and women to lessen the dangers that arise from public supplies of various kinds; to teach the children as well as the public, their duty from the sanitary standpoint toward their neighbors, and to assist in the solution of problems that are today perplexing physicians and scientists. Many of these wants can be, and are being supplied by the colleges and scientific schools, and the periodicals and the public press are earnestly pushing on the good cause.

It can hardly be less than an educational and scientific duty for us to see to it that the young people who are graduated from our modern colleges shall have at least a realizing sense of this new scientific development, all of which has grown up within the last forty years.

THE CHARLESTON (MO.) EARTHQUAKE. BY A. H. PURDUE.

The earthquake of October 31, 1895, is the greatest seismic disturbance that has occurred in the Mississippi Valley since the noted earthquake of 1811. Though nowhere intense enough to do great injury to buildings, it was perceptible over an area of more than 400,000 square miles.

A short time after the occurrence of the earthquake the writer communicated blanks to the teachers of science in seventy-five cities and towns in the States of Indiana, Illinois, Missouri, Arkansas, Alabama, Mississippi, Georgia, Kentucky and Tennessee, requesting information concerning the time, duration and intensity of the shock, together with the apparent course of wave movement, and subsequent phenomena. The major part of these blanks was sent to science teachers of Indiana with a view to determining, if possible, whether the great volume of gas removed in recent years has had any effect on the stability of the crust within the gas region. It seemed not unreasonable to suppose that the relief of pressure within the rocks from which gas has been removed has left them in a strain, in which case the earthquake waves might produce a collapse which would be indicated by their reinforced intensity.

Of the seventy-five blanks sent out, only thirty-nine were returned, consequently my information is not so complete as I had hoped to secure. Of the thirty-nine received, however, twenty-seven are from Indiana, so that the facts concerning that field are tolerably complete.

The reports sent in substantiate what the newspapers had already indicated, viz., that the epicentrum was in the vicinity of Charleston, Missouri. The person^{*} reporting from that place says that the force was "sufficient to break several plate-glass windows, crack brick walls, and throw down brick chimneys." He also reports: "About four miles southwest of this place the ground was cracked open in several places, and sand and water were forced from the fissures, causing what are commonly known in this section as sandblows. For a few minutes afterward water spurted from several pumps." There were at least two

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