

Biological Stains Being Standardized

Biology

Special Commission Undertakes the Task

BRIGHTLY colored dyes with which scientists stain dangerous disease germs to make them visible are in need of standardization, and this important task is now going forward under the auspices of a special commission, the Commission on Standardization of Biological Stains. Reliability of the tests for identifying disease germs depends in many cases on the quality of the aniline dyes.

Describing the progress of the investigation and the significance of the dyes in diagnosing diseases, the commission explains the way in which dyes are used to detect the organism that causes typhoid fever.

No one cares to have his food handled by a person who carries living typhoid bacilli around with him, even though all clinical evidence of the disease in this individual may have been over months or years before. The detection of such "typhoid

carriers" is assisted by certain aniline dyes. However, typhoid bacilli look almost exactly like certain other kinds of bacteria present in everyone's intestines, which have no relation to this disease. The similarity is so great that bacteriologists were at a loss until the use of dyes was discovered as a means of telling them apart. Several different dyes have been employed in this way; but the most interesting perhaps is the red dye, fuchsin.

If a jelly-like culture medium of the right consistency is prepared and this dye added to it just before use, the bacteriologist finds that only a few kinds of bacteria can grow on it, including the typhoid germ and one or two others. When the medium is properly prepared it is not red but a light straw color, for the dye in it has been reduced and is therefore decolorized. Now of the two kinds of bacteria most like the

typhoid organism, one restores the color of the dye to a bright red, another to a light pink; while the typhoid organism itself does not restore the color. Therefore the places where the typhoid organism has grown on this medium are white; but the growth of the other organisms is colored. In this way the distinction can be made and it is possible by the use of this medium to tell whether a person is a typhoid carrier.

Unfortunately, however, not all fuchsins on the market work well in this test. Some do not allow the proper coloration of the ordinary intestinal bacteria; others are too red even before inoculation. Just why these different lots are at fault is a question that scientists have not completely answered. The manufacturer is unable, therefore, to furnish a uniformly satisfactory product, and the bacteriologist would be often inconvenienced in the matter except for the assistance of the Commission on Standardization of Biological Stains.

This commission is a private, non-commercial, organization formed by certain scientists as representatives of various scientific societies. The commission has employed two different methods of standardizing the stains. The first is to determine the exact chemical nature of the dye satisfactory for any particular biological use and to furnish the manufacturer with such information. This is the ideal method and has been adopted whenever possible. In some cases a less satisfactory method of standardization has to be employed. The manufacturers have to submit samples that they think are all right, and members of the commission test them to see if they work. Approval is given only to those samples that are satisfactory and the manufacturer submits a new sample whenever it is necessary to make a new batch.

In this way it has proved possible to keep unsatisfactory lots of biological stains off the market. Now one can, for instance, buy a sample of fuchsin that has been approved by the Stain Commission, and be sure that it will work in the test above described for typhoid.

Science News-Letter, March 8, 1930

Figurines Found in Ruins at Ur

Archæology

SLENDER, archaically - modelled little female figurines and the clay image of a flying bird, recently turned up in the ruins of Ur, may well be the idols of the ancient people whose doings disgusted Noah and provoked Yaveh into sending the Flood. At any rate, these images have been found deep in the soil under the ancient city, associated with the thick layer of mud deposited by the Deluge, by the joint expedition of the University of Pennsylvania Museum and the British Museum. A report of the discovery has just been received from C. Leonard Woolley, field director of the expedition.

The archaeologists have been digging downward with the determination of finding the city's lowest level, the virgin soil on which the first settlers put up their houses. They have almost reached it. They have pierced trial shafts through the remaining soil beneath their feet, bringing up pottery fragments and other evidences of human occupation for a little space, then nothing but clean sand, into which the shafts have been driven to a point two feet below sea level.

At a level considerably later than

diluvial date, the diggers came upon evidences of industrial life in this ancient Mesopotamian city. Mr. Woolley tells of the discovery:

"Below our eighth building there came a change. No more walls of buildings appeared, and the soil was little more than a mass of broken pottery. The explanation was soon forthcoming. A brilliantly colored ring of red and green and pale yellow proved to be a burnt-out kiln of bricks lined with fire-clay, and in the ashes which filled it there were still the clay pots of the last firing. More kilns came to light, covering the whole area in successive levels; basins lined with cement bricks for the kneading of the clay, potters' tools made of baked clay and pebbles for burnishing the pots. It was a prehistoric factory, and the dense mass of sherds which buried the site was made from the 'wasters' discarded by the potter. As the kilns lay four deep the industry must have lasted for a long time."

Science News-Letter, March 8, 1930

Just as light clothes make an individual appear larger, so light walls make a room appear larger.