thella typhi, Escherichia coli and *Staphylococcus aureus*. To the dry contaminated powders was added 2 cc of the prepared Clarase solution. The enzyme penicillin solutions or suspensions were transferred immediately to several tubes of Brewers' fluid thioglycollate medium (approved medium of the National Institute of Health). The contents of the tubes were mixed thoroughly by swirling and placed at 37° C to incubate. A luxuriant growth of the inoculated test organisms was had in all tubes at the end of 48 hours. Control tubes containing gram-positive organisms and penicillin, but without enzyme, failed to show evidence of visible growth at the end of 7 days incubation. However, many of the tubes containing gram-negative organisms and penicillin without enzyme showed some growth after several days. These results could be expected on the basis of known resistance of most gram negative bacteria to the antibacterial agent.

Method: With the information obtained in this and additional studies, the following method for routine sterility tests on penicillin powder is proposed. A stock of 1 per cent. sterile solution of Clarase in phosphate buffer, pH 7.0, is distributed in 2 cc amounts in sterile cotton plugged test-tubes or in ampules which may be sealed. The sterile enzyme solution, stored in a refrigerator, will retain its anti-penicillin activity for a period of at least two months. The contents of an ampule of penicillin are dissolved or suspended in 2 cc[10] of prepared Clarase solution and transferred immediately to tubes of Brewers' fluid thioglycollate medium. The inoculated tubes are placed at 37° C. and examined for possible bacterial contamination throughout a period of 7 days. An additional 7 days incubation should be allowed for detection of possible mold contamination.

C. A. LAWRENCE

RESEARCH LABORATORIES OF
WINTHROP CHEMICAL COMPANY, INC.,
RENSSELAER, N. Y.

QUIETING PARAMECIUM FOR THE ELEMENTARY STUDENT

THIS new mechanical method of "hog-tying" Paramecium for classroom study has proved to be completely reliable and "foolproof" in the hands of our large student body at Washington Square College, New York University. It is somewhat simpler and more stable than the method reported recently in SCIENCE,[1] and much more dependable than any of the older methods.

The method depends upon the high viscosity, the low tonicity and the non-toxic properties of a methyl cellulose solution; and upon the fact that this solution displays very little change of viscosity as it is warmed (as by the lamp of the microscope). Best results are obtained by using a ten per cent. solution of methyl cellulose (Dow Chemical Company; viscosity type, xx low). Place one large drop of this solution on a slide in contact with an equal-sized drop of the Paramecium culture, stir the two drops together with a toothpick, put on a cover slip (no bristle or other support is necessary), and the preparation is ready for immediate study.

The slowing effect of this solution is remarkable. Now it takes the specimen about ten minutes to cross the high power (4 mm) field. Nevertheless, the form remains altogether normal, and even the rotational character of the locomotion is retained. The ciliary beat is so slow that it is quite easy to differentiate the "active" and "recovery" phases of the strokes. The progressive passage of the individual food vacuoles throughout the body can be followed (especially if a little carmine suspension is added to the culture just before mixing with the cellulose solution), and the process of defecation can be observed, as the specimen leaves a trail of fecal granules along the slow path of its progress. The untrained student also finds little difficulty in getting a good look at the other structures of the specimen, including the pulsating contractile vacuole, the gullet and undulating membrane, the trichocysts and in some cases even the macronucleus.

The further advantages of this method are inherent in the stability of the methyl cellulose solution and of the resulting "wet mount." Even without sterilization and at room temperature, the stock cellulose solution will keep for months. The "wet mount," due to the very slow evaporation of the solution, far outlasts any ordinary preparation. Without any attention at all, it does not deteriorate appreciably in two to three hours.

DOUGLAS A. MARSLAND

WASHINGTON SQUARE COLLEGE,
NEW YORK UNIVERSITY

[10] This quantity of Clarase solution will inactivate as much as 50 mg of penicillin containing a total of potency of 10,000 or more Oxford units.

[1] John B. Buck, SCIENCE, 97: 2526, 494, May 28, 1943.

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