the part on which it is to rest is given a thin uniform coating of melted beeswax, then the new part is added, pressed down and held in position for a short time until the wax hardens. After the model is thus built up the exposed surfaces are covered with a thin coating of wax, which on hardening smooths the surface and tends to prevent injury from excess moisture.

One objection to reconstructions made entirely of wax is that they are very apt to become distorted when exposed to the variable temperature of an ordinary room. Models constructed as described above are not so easily affected, since the beeswax between the strawboard sections is protected. Such models are also lighter, easier to handle, and not so liable to injury when packed and shipped as are the wax ones. In this respect they differ little from those made of blotting paper. The greatest advantage over both the wax and blotting paper methods is the rapidity with which a reconstruction can be made, without the sacrifice of accuracy. The fact that the blanks are easily preserved makes possible their use at a later time in checking over the details of the model, which often is of great assistance.

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INEXPENSIVE LANTERN SLIDES FOR TEXT OR TABULAR DATA

IT is often desirable to project text, mathematical formula or tabular data upon a screen for purposes of class instruction or during the presentation of a paper at a scientific meeting. Use of a lantern saves the time of the instructor which would be necessary to inscribe the data on a blackboard and also makes for greater accuracy and legibility. The obvious drawback to the use of the lantern lies in the cost of photographed lantern slides.

I have found that very satisfactory slides may be prepared by making use of the ordinary "Dermatype" stencil sheets such as are used for mimeograph work. The data are cut on this stencil by the bare type of a typewriter so as to occupy an area on the stencil measuring approximately 7 x 8.5 cm. By the use of elite type, rather extensive tables can be printed within this space. A portion of the sheet, with the data in the center, measuring 8.5 x 10 cm, is then cut from the stencil by a sharp knife or a safety razor blade and mounted between two thin sheets of glass of the same dimension. Black paper tape is later used to bind the edges of the glass.

Such a lantern slide projects light figures or letters on a light blue background, the data being plainly visible even in a fairly well-lighted room.

Such lantern slides are permanent and can be prepared at a cost for materials of approximately five cents each.

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SPECIAL ARTICLES

SPECIFICITY IN FERTILIZATION

THE results of experiments that I completed while working as a research associate of the Carnegie Institution of Washington, at the Misaki Marine Biological Station of Tokyo Imperial University, add to our knowledge of the factors controlling specificity in fertilization.

The methods devised made it possible to eliminate cortical block to activation in every cross-activation attempted, and to obtain better than 90 per cent. early development in all cross-activated material. This percentage of cross-activation is unusually high, but the especial significance of the results lies in the fact that of thirteen cross-activations made, eight were from four pairs of reciprocal crosses. It is well known that the facility with which a cross-activation is made in one direction is no indication of the degree of success which may be anticipated with the reciprocal cross.

All the work was done with echinoids. The preliminary studies of species fertilization revealed the fact that the eggs of *Heliocidaris tuberculata* did not form a separated fertilization membrane, and that the eggs of *Temnopleurus toreumaticus*, shortly after insemination, contracted strongly within the fertilization membrane, not to resume their normal rounded form until just prior to the first division.

We think of developmental reactions in terms of eggs. Ordinarily, we endeavor to give the egg such treatment that it will follow its own normal course of development. These experiments followed a different plan. I decided to inseminate the *Heliocidaris* egg with *Temnopleurus* sperm and then attempt to make this egg show the reactions that are normally shown by the *Temnopleurus* egg following species activation, namely, to form a separated fertilization membrane and to contract strongly a few minutes after activation.

To state the matter in another way: After some comparative study I took as a working hypothesis the idea that sperms differ in degree, at least, in their effect on the egg. The effect produced by a spermatozoön on the egg of its own species may be called, for convenience, its natural effect. The work done by a spermatozoön in producing the natural effect is an indication of the natural potency of the spermatozoön.