ABSTRACTS OF COMMUNICATIONS.

Minnesota Branch

Tenth meeting.

Minneapolis, Minnesota, February 14, 1923.

136 (2096)

Effects of electricity on noctilucca.

By E. P. LYON

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I. A brief direct current or a single break induction shock causes the protoplasm to pull away from the cell wall. The effect is usually cathodal; sometimes anodal, particularly when the aboral part of the cell is toward the anode. Sometimes the effect is seen simultaneously at both poles.

The phenomenon gives the impression of contraction and breaking of the strands of protoplasm attached to the cell wall or pellicle. A clear area looking like a blister filled with liquid is formed, the shape being dependent on the extent of protoplasm pulled away from the wall and the resulting disturbance of protoplasmic stresses. If the bleb is small, it may be pinched off later without further deformation of the organism. If the bleb is large, gradually the protoplasm pulls loose all the way around, the strands being seen to give way one or a few at a time. Finally the whole protoplasm shrinks into a shapeless mass around the oral end. Recovery is sometimes possible, but probably involves the formation of a smaller cell with new cell wall.

It appeared certain that the strands are solid structures along which a considerable tension is exerted.

A short tetanizing current gives blisters at both poles.

II. If such a dye as phenolsulphonpthalein was placed in the sea water between the cells of a dense culture, the color could be observed for fifteen minutes or more. But if a break shock or short tetanizing current was passed, the color disappeared at once. The cell juice of *Noctilucca* is strongly acid (Ethel Brown Harvey, *Carnegie Reports,* Marine Biology, 1917). Stimula-

tion caused increased permeability and the acid diffused out. This effect could not be obtained with currents too weak to cause the bleb formation previously described.

III. Mrs. Harvey states that the tentacle coils at the make remains coiled while the current is passing and relaxes at the break. This is true for certain individuals and certain positions of the organisms relative to the current direction, but not for all. There is considerable variety of detail for which the reader is referred to a fuller report to be published later. When the current is from aboral to oral the usual effect is as follows: Strong contraction of tentacle at make; held contracted nearly to full extent while current is passing; slight contraction (sometimes none) at break followed by marked relaxation. When current is oral to aboral: extreme relaxation at the make (sometimes preceded by a slight instantaneous contraction); held relaxed while current is passing; strong contraction at break, followed by return to normal position. Often spontaneous to and fro movement was seen either in the strongly contracted or strongly relaxed tentacle while current was passing. These effects of the current seem explicable on the basis of electrotonus.

137 (2097)

Observations on the assay and factors influencing the quality of digitalis.

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A method for assaying digitalis and other drugs of this group by the use of cats was outlined. The procedure was practically identical with the Hatcher-Ouabain Method, as published in the *American Journal of Pharmacy,* 1910, but differed in the important point of completing the test with the digitalis to be standardized, rather than with a standard Ouabain solution. Results by this method, it was stated, were comparable with those obtained with Ouabain, and as accurate as the use of frogs or guinea pigs for determining toxicity. Regulating the dose