

not penetrate deeply into several layers of tissue, as is possible with the osmium salt. It fixes the outer cell layers very well but it appears to have been mostly decomposed before cells in the interior of a structure can become fixed. Methods to overcome this difficulty are being studied.

To familiarize the reader with the use of the fixative, the following general procedure is given—(1) Smear anthers between two slides, (2) immediately drop diluted fixative onto slides and leave for 3 minutes, (3) pour off fixative and replace with one drop of Linder's medium (glycerine 40, lactic acid 20, phenol 20 and water 20 per cent.), (4) cover and seal. The fixative should render the material distinctly gray (but not black) during the fixation process when viewed against a white background. Under the microscope the chromonemata appear dark against the gray protoplasm. If staining is desired, a small amount of carmine may be added to Linder's medium or the slides may be dehydrated after fixation and stained by other methods. Treatment with H_2O_2 was found to be distinctly detrimental to maintaining the fixed cell structures.

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A METHOD FOR LOCATING THE LARVAE OF THE MOSQUITO *MANSONIA*

ENTOMOLOGISTS and sanitary engineers engaged in mosquito work often experience difficulty in locating the breeding places of *Mansonia perturbans* Walk. even though the abundance of this mosquito at the particular time and place is such as to make it a very serious pest. The writer has been engaged in investigations of the biology of *Mansonia* in central Florida for the past two years and has developed the method here described for collecting larvae of this insect. Of several methods tried, this has proven the most satisfactory in locating breeding grounds of *Mansonia*.

The larvae of *Mansonia* differ from those of other mosquitoes in that, with the exception of the first few days of larval life, the larval and pupal periods are spent at the bottom of the ponds and marshes where they breed. Peculiar adaptations of the larval air tube and of the pupal breathing trumpets enable them

to pierce submerged roots and stems of plants and obtain air therefrom. Difficulty in locating the breeding grounds has undoubtedly arisen on account of the fact that the larvae quickly detach from stems and roots when disturbed and bury themselves in the debris at the bottom of the pond. Thus very rarely are they found by merely examining submerged stems and roots which have been pulled out of the water.

Actually to determine whether or not a marsh is breeding *Mansonia*, the plants over a small area (in practice about one square yard) should first be pulled up, thus disengaging any larvae that may be attached thereto; immediately after which the debris from the bottom of this area, in which if present the larvae are hidden, should be scooped out to a depth of about one inch. This may be done by means of a vessel having a screened bottom. A regular water bucket, the bottom replaced by twenty mesh screen wire, has proven satisfactory for this operation. As each scoop of debris is collected it is placed in a twenty mesh screen wire basket which is held partly submerged and holds in captivity any larvae thus collected. By keeping this basket partly submerged and by occasional shaking a large quantity of mud and minute trash is washed out, thereby lessening the quantity of debris to be examined later. This wire basket may be of any shape, but one recommended on account of ease of construction is conical, having a diameter at the mouth of eighteen inches and a depth of twenty-four inches.

The basket with its contents is next carried ashore for examination. The procedure usually followed in examining the debris is to place a small handful of it in a white enameled laboratory pan, adding about one quart of clear water, and then carefully to search the pan for larvae. If present, the larvae, which are whitish and very active, will be found at the bottom of the pan. Often, however, some individuals, usually those which have been injured by rough handling, are found at the surface of the water.

The number of these examinations necessary to determine whether or not a given area is infested with *Mansonia* will, of course, depend on the size of the marsh and on the number of different types of environment present therein.

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SPECIAL ARTICLES

ON ATMOSPHERIC ELECTRICITY

ACCOUNTS of certain remarkable effects of atmospheric electricity on the growth of plants have been related by enthusiasts both in this country and

abroad. Yield increases of more than thirty per cent. have been reported from fairly definite and systematic yield tests. The results of other investigations have been negative, no significant yield increases having