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THE EFFICIENT PARASITE[1]

By Dr. N. H. SWELLENGREBEL

PROFESSOR OF PARASITOLOGY, UNIVERSITY OF AMSTERDAM

THE paper I was supposed to read, but did not, in Section V of this congress bore the title, "The Efficient Parasite." I am going to tell you of a highly efficient parasite I came across in the bush-country of Dutch Guiana. But before coming to that, let me first explain to you what I understand by the word "parasite." Once I have made that clear, the other word, "efficient," will need no explanation.

Now, I beg of you, keep this in mind, that I am not going to tell you what a parasite is, but only what I understand this word to signify. It is simply a matter of definition. Many, or all, of you may have an entirely different definition in mind. So all I ask of you is to accept my definition just for argument's sake and for a period of forty minutes. By the end of that time you may reject it without giving it another thought.

[1] Address delivered before the General Sessions of the Third International Congress for Microbiology, New York, September 2–9, 1939.

Well, then, by parasite I understand an organism wholly dependent on another living organism for its food, its shelter and its reproduction. That other living organism, which provides the parasite with board and lodging, including sufficient shelter to carry on its love affairs without awkward disturbances of any kind, is usually called "the host." If the host is to be of any use to the parasite, it ought to be a living host; a dead host is no good. Now, please, keep that in mind: a dead host is not a host any longer. When the host dies, the whole brood of parasites inside or on his body dies with him. I need not give you any examples; you all have them at your fingers' ends.

Now I ought to admit at once that this statement is not always true. A very striking example is offered by the anthrax bacillus. That is an organism which actually thrives on the death of its host. In fact, it could not continue its existence without that death. It

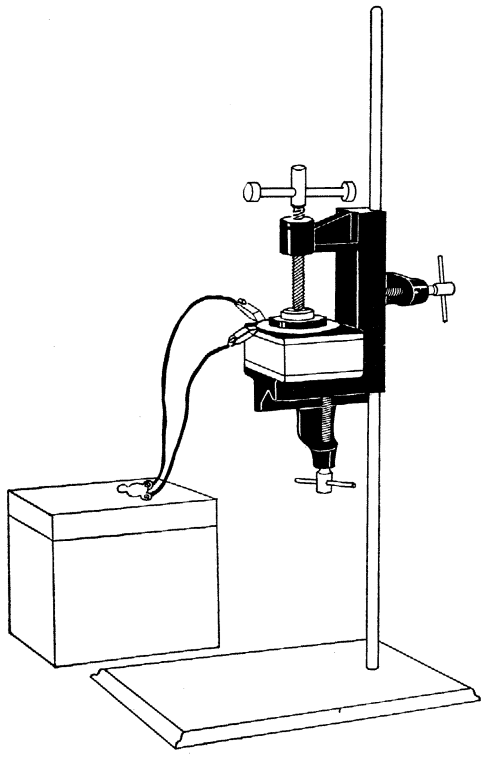

FIG. 1

The method is susceptible to various modifications. An important feature in its operation is the short distance of travel of the ions from the leaf to the papers, which reduces the time period required for a determination. Several papers may be used together when it becomes necessary to separate the testing operations, and one or more leaves may be taken depending on the amounts of the ions required for the tests. Paraffin rings on the papers confine the products of an electrolysis. Micro-cells may be formed by means of thin rubber gaskets. Black papers help to better identify white precipitates or light colored crystals under the microscope. Other modifications of technique may be necessary for special applications of the method.

Many important tests can be made with the method, and it should find a general application. In the field of soil fertility, diagnosis, problems pertaining to either deficient or excess plant nutrients, or to other chemical components of the soil, may be studied by means of rapid determinations of ions in the leaves of plants grown on the soil. Electrolysis of plant leaves should give information about the chemical processes and the physico-chemical states of the ions in the plant not obtainable by means of total analysis, the common method. Another possible use of the method is for the rapid detection of selenium, cyanide, arsenic, aluminum or other toxic substances which may be present in plants that have grown on certain soils.

Data are being collected for a more complete publication dealing with the application of the method to some phase of the general project as stated above.

C. H. SPURWAY

MICHIGAN STATE COLLEGE

A SIMPLE "LIVE" TRAP

AN ordinary spring mouse trap is fastened on top of a cigar box and strings tied at A and E (see Fig. 1). The hook at C is baited and a paper clip D is

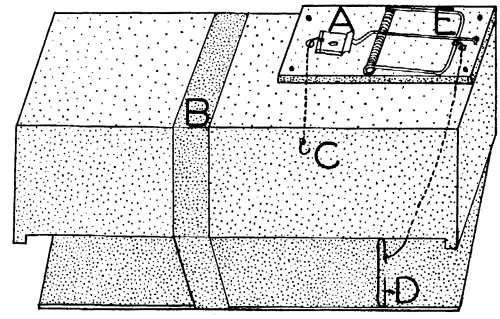

FIG. 1.

fastened to the end of the second string to hold open the lid of the box (placed upside down). A strong rubber band, B, is then placed around the box and the trap on top is set in the usual manner. When the prospective animal nibbles the bait at C the spring pulls the prop D and the rubber band quickly closes the box.

This type trap has been found satisfactory for small mammals such as field mice. By employing a larger box and modifying the bait hook it should be useful for larger animals.

If there is danger of surrounding twigs and grass springing the trap prematurely, a guard can be constructed of fine mesh window screen. Total cost per trap is approximately 5 cents plus 10 minutes' time for construction.

M. W. JOHNSON

DUKE UNIVERSITY

BOOKS RECEIVED

GLOYD, HOWARD K. *The Rattlesnakes; Genera Sistrurus and Crotalus.* Pp. vii + 266. Illustrated. Chicago Academy of Sciences.

HOOTON, EARNEST A. *Why Men Behave like Apes and Vice Versa.* Pp. xxv + 234. Illustrated. Princeton University Press. $3.00.

METCALF, MAYNARD M. *Further Studies on the Opalinid Ciliate Infusorians and Their Hosts.* Pp. 465–634. Illustrated. U. S. National Museum.

MITCHELL, LUCY S., ELEANOR BOWMAN and MARY PHELPS. *My Country 'tis of Thee; The Use & Abuse of Natural Resources.* Pp. xv × 335. Illustrated. Macmillan. $3.50.

STANFORD, E. E. *Man and the Living World.* Pp. xxviii + 916. Illustrated. Macmillan. $3.50.