out and others are in the process of solution. Facilities are available for the keeping of experimental animals, including an aquarium building and houses for mammals, birds and reptiles. The location of the laboratories in the midst of the lake region of northern Michigan makes available a wealth of problems on the parasites of aquatic animals. A permanent collection of the parasites of the region is being built up which is becoming of increasing value in the researches.

The summer of 1930 saw the moving of the University of Michigan Biological Station into enlarged quarters. Two laboratories are entirely given up to the work in parasitology, and plans are under way to increase considerably the facilities for handling experimental animals for the life history studies and for other types of experimental work. The work is well past the preliminary stages and every indication points to increased development of personnel and facilities. Interest in parasitology has greatly increased in the United States in the last decade, and the development of this center at the Michigan Biological Station will help to meet the demand for summer work in the biological phases of this subject.

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## BOTANICAL LEGACIES OF WALTER DEANE

BY bequest of the late Walter Deane, who died at his home in Cambridge, Mass., July 30, 1930, in his eighty-third year, there have been received by the Gray Herbarium of Harvard University: (1) His herbarium, consisting of about 40,000 sheets, selected and mounted with special care, representing chiefly the flowering plants, ferns and fern-allies of the region covered by Gray's Manual; (2) his botanical library, including about 500 volumes; (3) his collection of portraits of botanists.

Mr. Deane, for many years widely known as an enthusiastic amateur botanist with extensive correspondence and wide-reaching exchange relations, was a member of the visiting committee of the Gray Herbarium since 1897, and one of the founders of the New England Botanical Club, being at different times its phanerogamic curator, its vice-president, from 1908 to 1911 its president and for some years its librarian. His botanical specimens were left to the Gray Herbarium with the provision that the New England Botanical Club be allowed to take from them such as might be useful in supplementing its own collections.

Mr. Deane's herbarium has long been noted among American amateur collections of its kind. In it there are many series to illustrate the development of the seedling from earliest germination to normal adult foliage. Particular care was also taken to illustrate the ripe fruit and mature seed, as well as to supply pocket material for dissection. Finally, unusual attention was devoted to the effective exhibition of the roots and other subterranean parts so far as possible.

The collection is historically important since a large part of its specimens have been from time to time studied by specialists and monographers such as Gray, Watson, Bebb, Morong, Davenport and many others, so that the value of the specimens has been greatly increased by critical notes of such authorities recorded during monographic work.

In addition to the valuable botanical collections here described, Mr. Deane bequeathed to the Gray Herbarium the sum of $20,000, the income thereof to be expended in the care of its library, and a further legacy of $25,000 to be paid to Harvard University at the expiration of certain life interests and to be used for the general purposes of the Gray Herbarium. He also left the sum of $1,000 to the New England Botanical Club for the promotion and care of its herbarium.

The passing of Mr. Deane removes from American botany a notable figure. His modesty and enthusiasm as well as his exceptional powers of friendly and helpful interest in the work of others won for him the affectionate regard of all who came into touch with his scientific pursuits.

B. L. ROBINSON

# SCIENTIFIC APPARATUS AND LABORATORY METHODS

## AN IMPROVED SOIL SAMPLER

SOIL samplers of various designs have been employed for many years. The most common tool used in the classification of soil types is the screw type soil auger. A sharp spade and the post-hole digger are likewise frequently employed in securing soil samples. The major disadvantages of these three tools lie in the necessity of handling the sample and in the disturbed condition of the soil. Perhaps the spade and the post-hole digger are not as unsatisfactory as is the screw type auger, but they are awkward to manipulate.

For use on any soil free from gravel or rocks the writer has devised a tool which enables one to obtain a sample in the form of a cylinder of any desired length. This instrument has proved particularly useful in obtaining undisturbed soil samples in nearly natural condition.

The tool is made in one piece. It consists of a heavy galvanized iron pipe 36 inches long and 1¼

inches in diameter, with a one-inch galvanized pipe, 18 inches long, brazed to the top to form a T handle.

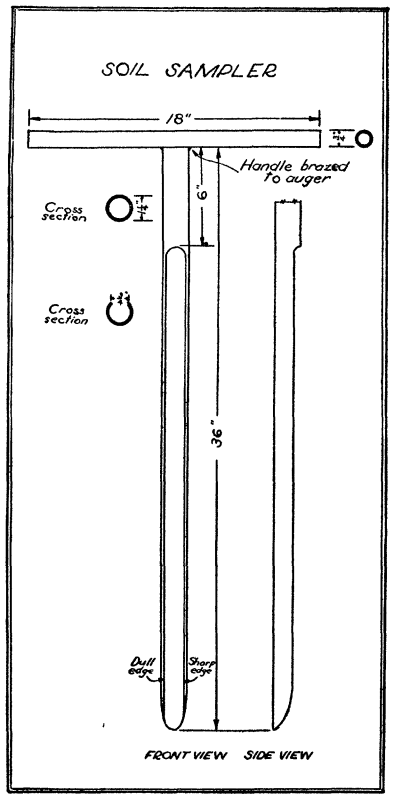


FIG. 1

A ¾-inch slit is cut in the main pipe, from the bottom to a point six inches below the handle. The right edge of this slit, as viewed from the handle, is dull; the left edge is beveled from within, making a cutting edge 30 inches in length. The lower end of the tool is finished in a rounded point, sharpened at the end.

In operation the tool is simultaneously thrust into the ground and turned gradually to the right in the same manner as an ordinary screw type soil auger. After the tool has entered the soil to the desired depth a slight backward twist releases the core from the main body of the soil. The tool is then slowly pulled out, with particular care to avoid sudden jerks. When the tool is taken from the soil it carries a cylindrical core of slightly compacted soil. A pocket knife is inserted into the soil core at the point where the cylinder begins to taper. This piece of core is pushed out in order to permit the easy removal of the main core from the cylinder. The core can be gradually pushed out in sections, by means of a knife blade or other flat instrument. The emerging core is cylindrical, and it will be found that the interior physical structure has been but slightly affected. The writer has used such a soil sampler at different times and under diverse conditions, always obtaining better results than with the screw-type auger.

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# SPECIAL ARTICLES

## ADRENAL CORTEX EXTRACT AND CANCER[1]

THE treatment of cancer by glandular extracts has had a moderate study limited by the few glandular extracts existing in pure form. The most recent and highly vaunted treatment has been that of Coffey and Humber,[2] of San Francisco, who used what was said to be an adrenal cortex extract of unstated composition. The curative claims made for their method are so great as to make further study of these extracts of importance in order to establish the place of cortical extracts in the treatment of cancer patients.

A modified adrenal cortex preparation has been described and discussed by Sokoloff.[3] The preparation of Auler and others[4] is unfortunately rather toxic. Kondo[5] was unable to discover any definite evidence that extracts of the suprarenal cortex act as stabilizers of growth in young mammals. The outcome obtained by Joannovics,[6] Pearce and Van Allen,[7] Auler[8] and Floercken[9] is of academic interest only, as removing or destroying the adrenal glands in an effort to elicit a restraining influence on transplanted tumors is an indirect method of approach, after all. Still less direct is the method of Flaks,[10] who mixed the tumor graft with adrenal tissue and found an inhibitory effect when the mixture was tested by injecting into normal animals.

In all these experiments no statement is made as to the efficiency of the adrenal cortex extract in substituting for the glandular hormone itself in adrenalectomized animals. Such an efficient extract has been prepared and described by Swingle and Pfiffner[11] and

[1] From the Cancer Research Laboratories, Graduate School of Medicine, University of Pennsylvania.

[2] W. B. Coffey and J. D. Humber, *J. A. M. A.*, 94: 359, 1930.

[3] B. Sokoloff, *J. A. M. A.*, 94: 652, 1930.

[4] H. Auler, H. Schlottmann, W. Rubenow, P. Meyer and B. Wolff, *Zeits. f. Krebsforsch.*, 32: 195, 1930.

[5] T. Kondo, *Archiv. f. Jap. Chir.*, 6: 62, 1929.

[6] G. Joannovics, *Beitr. z. pathol. Anat.*, etc., 62: 194, 1926.

[7] L. Pearce and C. M. Van Allen, *Trans. Assoc. Amer. Phys.*, 38: 315, 1923.

[8] H. Auler, *Zeits. f. Krebsforsch.*, 22: 210, 1925.

[9] H. Floercken, *Zeits. f. Krebsforsch.*, 24: 465, 1927.

[10] J. Flaks, *Zeits. f. Krebsforsch.*, 30: 145, 1929.

[11] W. W. Swingle and J. J. Pfiffner, SCIENCE, 71: 321 and 489, 1930.