The confusion of names and the uncertainty of many generic characters had become a serious obstacle to any general studies in this vast group. Dr. Cushman's investigations have been so comprehensive and his findings so clearly marshalled that this last great work will be a point of departure for all future studies in the Foraminifera.

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Thomas Condon, Pioneer Geologist of Oregon. By ELLEN CONDON MCCORNACK. University Press, Eugene, Oregon, 1928.

PROFESSOR CONDON was an outstanding and singularly attractive figure in the history of Western geology. He came as a missionary to Oregon in its early days in 1852. Interested from the first in the geology and fossils of the new country, he became more and more a leader and teacher in the science, and when the University of Oregon was organized in 1876 he was appointed to the chair of natural science at Eugene, and spent a long and active life in exploring, collecting, teaching and lecturing. He lived to see the pioneer community in which he had settled grow into a great and prosperous state, to see the new localities and fossils that he had discovered and brought to the notice of Eastern scientists become classic fields and well-known faunas, and the successive generations of students that he taught step forward into active useful life inspired by the fine enthusiasm and love of science that pervaded his life and teaching.

The correspondence with the Smithsonian Institution, with Marsh, Cope and others regarding Condon's discoveries, reveals an exceptionally fine and generous attitude on his part and may well serve as an inspiration to those of us who hope to follow his lead. A brief sketch of his life and principal discoveries, citations from some of his early essays and reports and an outline of the fossil mammal faunas of central Oregon are also included. An appreciative foreword by Henry Fairfield Osborn precedes the account.

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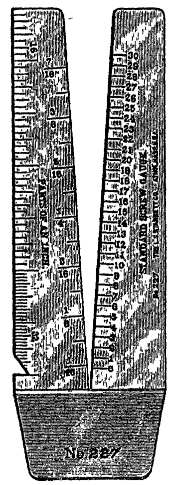
SCIENTIFIC APPARATUS AND LABORATORY METHODS

A GAUGE FOR RAPID DIAMETER MEASUREMENTS

FACED with the problem of measuring the diameter of several thousand fruit tree seedlings rapidly at a point just above the surface of the soil, the writer came upon a screw and wire gauge which met the requirements nicely, information about which he passes along to any others who may have similar problems to meet. The accompanying figure explains itself. The gauge is of spring tempered steel about four inches long and one and one-half inches wide, easily carried in the pocket. The gentle slope of the sides makes it possible to measure diameters with surprising accuracy. The markings in parts of an inch read in thirty-seconds of an inch, and in actual operation it is not difficult to read in sixty-fourths. The maximum diameter accommodated is seven sixteenths of an inch.



A second scale for measuring the outside diameter of screw threads offers further refinement. Reading from 0 to 30, they represent the following decimal equivalents of an inch:

No. 0—0.060	No. 10—.190
No. 1— .073	No. 12—.216
No. 2— .086	No. 14—.242
No. 3— .099	No. 16—.268
No. 4— .112	No. 18—.294
No. 5— .125	No. 20—.320
No. 6— .138	No. 22—.346
No. 7— .151	No. 24—.372
No. 8— .164	No. 26—.398
No. 9— .177	No. 28—.424
	No. 30—.450

In operation this gauge has been found superior to slide micrometers, both in accuracy and rapidity of measurement.

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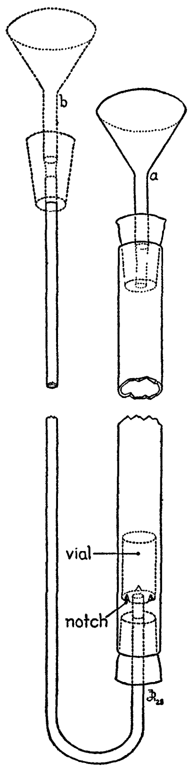
A SIMPLE FIXING, WASHING AND DEHYDRATING DEVICE

THE dehydrating device described by W. D. Courtney in SCIENCE for June 29, 1928 (p. 653) suggests a simpler apparatus that I have used in the zoological department of the University of Texas for a number of years. This embodies the principle of Courtney's device for dehydration, namely, that alcohol, being lighter than water, is admitted from below.



The apparatus is illustrated in the accompanying cut. It is made up of strong-walled glass tubing of about 18 mm bore, fitted in the bottom with a fresh one-hole rubber stopper. Through this is run a thin glass tubing bent up as shown in the illustration. The narrow glass tube should somewhat overtop the larger one. The objects to be treated are placed in "baskets" consisting of short shell vials about 15 mm in outside diameter, each provided with two or three holes ground in the bottom to insure diffusion of fluids. The holes can be ground very readily *under water* by means of a sharp-edged carborundum stone. In the grinding operation the stone is guided by the tips of the thumb and index finger, which should be protected against abrasion by strips of adhesive tape. If the objects are smaller than the holes, these may be closed with small tufts of cotton. A label is added to each "basket"; with a little care the mixing of labels is entirely avoided. After dehydration is completed, the baskets with their contents are readily dropped into a dish of alcohol.

For economy of reagents it is well to have tubes of a half-dozen different lengths, say six, eight, ten, twelve, fifteen, eighteen inches, and a couple of dozen "baskets" to accommodate a variable number of specimens assembled at any one time.

For washing, a funnel with stem pushed half way into a suitable one-hole rubber stopper, is placed in position *a* of the illustration. Tap water may be run through without unduly shaking delicate specimens, an advantage over the Kornhauser apparatus (SCIENCE, March 27, 1924, p. 464). For dehydration the funnel is changed to position *b* (dotted lines), since alcohol must enter from the bottom.

Dehydration may be as gradual as desired. To control the rate of addition of alcohol I have utilized Long's capillary siphon method.[1] Siphons are prepared by drawing out glass tubing to capillary fineness; these are then calibrated. Thus with the appropriate siphon one can regulate the flow of alcohol so that dehydration will be completed in a couple of hours or a couple of weeks.

With no more handling of the objects, the apparatus may be used for fixing and mordanting as well as washing and dehydrating—one fluid is allowed to run out and the next is run in, changes that require only a few seconds.

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[1] J. A. Long, *Anat. Rec.*, 29: 319, 1925.

SPECIAL ARTICLES

THE LIFE CYCLE OF SPIROCERCA SANGUINOLENTA—A NATURAL NEMATODE PARASITE OF THE DOG

IN an earlier study[1] the writer found that mature third-stage larvae of *Spirocerca sanguinolenta* were commonly encysted in the mesentery and omentum and on the parietal wall of the stomach and adjacent intestine of the Asiatic hedgehog, *Erinaceus dealbatus,* and that these larvae, when fed to experimental puppies and kittens, excysted in the stomach of these animals, penetrated the stomach wall, passed through the gastro-epiploic veins into the portal circulation, thence *via* the capillaries of the liver and lungs into the left heart, and upon reaching the aorta became attached to the intima and burrowed into the aortic wall, where they produced extensive lesions. In view, however, of the fact that this infection occurs natu-

[1] E. C. Faust, "Migration Route of *Spirocerca sanguinolenta* in its Definitive Host," *Proc. Soc. Exp. Biol. Med.*, 25: 192–195, 1927.