was hoped, when the first moss section of "North American Flora" was issued, that this gap would soon be bridged; but fifteen years have elapsed and only two instalments have appeared. Even as far as it has gone, this latter work loses much of its usefulness to the general moss student in the complete absence of illustrations.

The present work aims to describe all known species of mosses occurring in North America, north of Mexico, together with any well-marked varieties or forms. In a measure, it is in the nature of a supplement to the author's justly popular "Mosses with Hand-lens and Microscope," but only to the extent that illustrations are here confined to species not already figured in that book. It will be issued in parts, of which the first (in order of publication) has just appeared. This deals with the Climacieae, Porotricheae and Brachythecieae, and describes sixteen genera and about one hundred species. Two new genera are distinguished, namely Pseudothecium (formerly included under Isothecium Brid.) and Chamberlainia (formerly included under Brachythecium Br. and Sch.), and there are numerous new nomenclatorial combinations. In addition to adequate technical descriptions for each species, there are citations of exsiccati and important illustrations, together with notes on distribution and habitat, and, in many cases, comparative notes. It is to be hoped that not only American bryologists but botanists in general will give this enterprise the support which its importance merits and upon which its completion depends.

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Special Cytology. The form and functions of the cell in health and disease. A text-book for students of biology and medicine. Edited by E. V. COWDRY. Paul B. Hoeber, Inc. New York, 1928.

THIS interesting and important book of 1,348 pages is the product of thirty-five distinguished American biologists, leaders in anatomy, histology, physiology, pathology, neurology, medicine and surgery. Each one has contributed a chapter on the subject which his investigations have helped to clarify. With such diversity of background of authorship and the marked inequalities in the extent of our existing knowledge of the cytology of different types of cells one would expect and does indeed find quite different modes of treatment of the subject-matter of the various chapters. This enhances the value of the book and is of particular interest where differences of opinion crop out in chapters with overlapping fields.

One is somewhat puzzled after reading the various chapters as to just what is meant by cytology. "The purpose of cytology," according to the introduction, "is not only to gain an accurate morphological knowledge of the cell, but also to learn its chemical constitution, the nature of its organs, the functions of its nucleus and cytoplasmic structures, etc." Twelve of the thirty-seven sections are concerned much more with microscopic anatomy, histology, embryology, comparative anatomy, physiology and pathology than with cytology. This is partly because comparatively little is known of the finer structure and functions of the individual cells and partly because the chapters seem to indicate that the authors are not cytologically minded: the treatment is not in terms of cell structure and cell function. The remaining twenty-five sections contain more or less cytology and in addition varying amounts of histology, physiology, embryology, pathology, etc. Each section is provided with a valuable bibliography.

The book emphasizes the fact that we know very little about the special cytology of the several hundred types of cells which make up the tissues and organs of the body. In spite of the somewhat misleading title of the book the editor and the contributors are to be congratulated on the excellent quality of the text, which will be very useful to students and teachers.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED METHOD OF PALM-PRINTING[1]

THE usual method of obtaining palm-prints for the study of epidermal ridges involves the use of a hard surface, either plane or curved, for transferring by pressure a film of printers' ink to the palm, and again for receiving the imprint of the inked palm. Some investigators prefer to ink the palm directly by means of the roller.

Owing to the uneven contact between the irregularly curved palmar surface and the unyielding surface of the plate or slab used in inking and printing, the impression is often imperfect. Usually the prints show interruption of the epidermal ridge lines where the hollow of the palm makes imperfect contact with the inked slab or with the paper, or else there is blurring of the ridge patterns along the bases of the fingers.

[1] From the Department of Medicine, College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital, New York City.

The method here described depends upon the use of a resilient surface for both inking and printing, and tends to obviate the difficulties mentioned.

The material employed for the pressure pad, as it will hereafter be called, is a variety of sponge rubber bearing the trade name of "Spongtex," which is sold by office-supply dealers[2] in the form of chair cushions. It is about 17 mm in thickness, with plane surfaces, one of which is covered with felt. For the purpose under discussion it should be cut into rectangular slabs of convenient size (*e.g.*, 15 x 15 cm), and the felt-covered sides of two slabs glued together with a liberal supply of Le Page's glue, applied to both slabs. Too much weight placed on the slabs while the glue is drying will result in subsequent warping of the pressure pad.

The materials required for printing are:

(1) Two pieces of plate glass (or polished metal), one about 15 x 15 cm, the other slightly larger (20 x 20 cm or more).

(2) Two rubber rollers of the kind used by etchers, and obtainable from dealers in artists' materials.

(3) A supply of paraffined paper, the heavier grade used in wrapping food.

(4) A tube of printers' ink.

(5) The pressure pad of "Spongtex" already described.

The paraffined paper should be cut in sheets slightly larger than the smaller glass plate (*e.g.*, 20 x 20 cm).

The process is as follows: Ink the smaller glass plate in the usual way by means of the roller—the optimum amount of ink is best determined by experience. Apply a sheet of paraffined paper to the inked plate as evenly as possible and squeegee thoroughly with the clean roller. Peel the paper from the glass and place it, inked side up, on the clean glass plate. Roll it carefully in all directions with the inked roller until the film of ink on the paper is evenly distributed. The paper will adhere to the roller, but this does not seriously endanger the result. Now place the inked paper on the pressure pad, inked side up. Bring the palm down on the inked surface with the fingers slightly spread and overhanging the pad beyond the middle of the proximal phalanges. Press the "heel" of your own hand down upon the dorsum of the subject's hand in the region directly over the hollow of his palm until you feel that contact with the ink has been uniform. Lift the subject's hand and peel off the inked paper. Place a sheet of clean (not paraffined) paper on the pad, bring the inked palm down upon it in the same position as before, and proceed exactly as in the inking process just described.

An inked sheet should be used but once, but a sufficient number may be prepared in advance for an entire day's operations; they will be found unsatisfactory if kept longer. With a little care a number of inked sheets can be carried about, thus avoiding the necessity of carrying plates and rollers and of re-inking a plate for each impression.[3]

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[2] In New York, A. H. Ivin Co., 331 Madison Avenue. Style No. 4 is recommended. It provides material for four slabs, *i.e.*, two pressure pads.

[3] It has been found preferable to ink the waxed paper directly with the roller rather than by squeegeeing it on an inked plate.

A slab of plate glass, having its shorter dimension at least 4 cm less than the length of the waxed paper, is prepared by affixing a strip of electrician's tape close to and parallel with each of the longer edges of the plate, on one surface only ("under surface"). The waxed paper is stretched across the upper surface of the plate and the ends turned underneath so that each end lies across a strip of tape. When the plate is laid on a table the ends of the paper will be held securely between the tape and the table so that the inked roller may be applied without causing it to slip.

A DEVICE FOR MEASURING SURFACE TENSION AUTOMATICALLY

THE measurements of the surface tension of colloidal solutions by means of the tensiometer must be made, either very rapidly, in case the dynamic value is sought, or else very slowly, and with great care, when the static value is required. We have shown indeed that the surface tension of such solutions decreased very rapidly as soon as the liquid was no longer stirred, but that also the rate of the drop decreased according to an exponential law. It is therefore necessary, when static measurements are made, to turn the knob controlling the torsion of the wire very smoothly and very slowly, increasing the pull at a rate of, say, twenty dynes per minute. In this way, the molecules disturbed by the deformation of the liquid surface have time to reorganize themselves in the surface layer. However, when taking such measurements, the "personal coefficient" of the experimenter plays an important part. In order to eliminate this cause of error entirely, Dr. Per Ekwall, of Åbo, Finland, fixed a clockwork on a tensiometer, and obtained excellent results; the clockwork was stopped by an electric contact operated by the lever supporting the ring.

We thought it might be better still to use a small electric motor, much less bulky than a clockwork, and