tinue studies on the measurement of the effective height of the Kennelly-Heaviside layers.

CHARLES PALACHE, professor of mineralogy, to continue work on revision of Dana's "System of Mineralogy."

HUGH M. RAUP, research associate in the Arnold Arboretum, to continue the investigation of the systematic and geographic botany of the subarctic Mackenzie River basin in northwestern Canada.

ALBERT SAUVEUR, professor of metallurgy and metallography, COMFORT A. ADAMS, professor of engineering, and JACOB P. DEN HARTOG, assistant professor of applied mechanics, for the study of metallurgical and stress problems of welding and stress relieving.

DONALD SCOTT, director of the Peabody Museum, to permit the Peabody Museum to cooperate with the Division of Anthropology in an expedition to Kashmir and the Tibetan border.

HARLOW SHAPLEY, director of the Harvard College Observatory, and DONALD H. MENZEL, assistant professor of astronomy, for an expedition headed by Dr. Donald H. Menzel to observe the Siberian total eclipse June 19, 1936.

JABEZ C. STREET, instructor in physics, to study the production of induced radioactivity by neutrons and the disintegration of atomic nuclei by protons and deutons.

RICHARD P. STRONG, professor of tropical medicine, to prepare illustrations for the monograph—"Onchocerciasis, with Special Reference to the Central American Form of the Disease."

YELLAPRAGADA SUBBAROW, Austin teaching fellow in biological chemistry, to isolate and investigate the structure of substances in liver which are active in pellagra and pernicious anemia, and which cause reticulocytosis in guinea pigs.

MORGAN UPTON, assistant professor of general physiology, to study the integrative action of the central nervous system by means of experiments on the binaural localization of sound.

WILLIAM F. WELLS, instructor in sanitation, to study the effect of ventilation factors on the viability and dispersion of bacteria and other living elements in air.

JOHN H. WELSH, JR., instructor in zoology, and FENNER A. CHACE, JR., assistant curator of marine invertebrates, to study the eyes of deep-water crustaceans.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE DEVICE FOR THE RAPID OBSERVATION OF OBJECTS IN LATERAL AND VENTRAL VIEWS

THE necessity of observing all surfaces of amphibian eggs with the least amount of manipulation has resulted in the development of several devices.[1,2] The simple apparatus here described has the advantages of being inexpensive and of requiring only about 25 minutes to make or repair; it is not easily damaged. In rapid succession one may obtain lateral or ventral views, or both simultaneously.

A diagrammatic section through the device is shown in Fig. 1. It consists of a solid, rectangular block of paraffin (*b*), in one side of which is excavated a chamber just large enough to hold firmly the two juxtaposed 90° prisms (p^1 and p^2), which are cemented in place with a warm scalpel. The upper face of one prism (p^1) forms the floor of a reservoir (*r*) into which is placed the object (*e*) to be observed. The walls of this reservoir are composed of paraffin on three sides, the fourth being formed by the upper portion of the external prism (p^2). Ventral views (*vv*) or lateral views (*lv*) or both simultaneously may be obtained by simply altering the position of the device with reference to the microscopic objective (*ob*). The floor of the reservoir (*r*) may be made perfectly level by planing thin strips from the lower surface of the paraffin block.

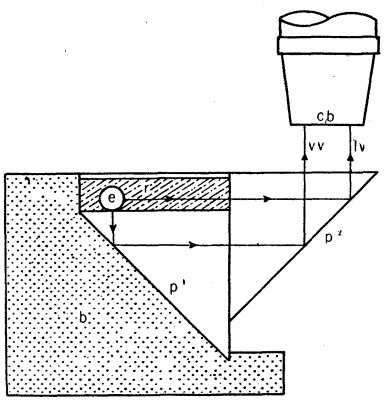

FIG. 1

[1] J. F. Daniel and A. B. Burch, *Univ. Calif. Publ. Zool.*, 39: 201, 1933.

[2] A. M. Schechtman, *Univ. Calif. Publ. Zool.*, 39: 303, 1934.

A. M. SCHECHTMAN

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

A MICROTOME KNIFE HOLDER FOR SAFETY RAZOR BLADES [1]

CONSIDERABLE difficulty has been experienced in using the razor blade holders commercially obtainable. The blade is not held sufficiently rigidly to permit of fine sectioning. The razor blades available seem to have quite as good an edge as the ordinary microtome knife and are, of course, much less expensive. Cham-

[1] From the laboratories of insect physiology and toxicology, Division of Entomology and Parasitology, University of California, Berkeley, Calif.

berlain[2] discusses holders and implies that the commercial ones are not desirable.

The obvious need is a method of clamping the blade rigidly and yet permitting easy adjustment of the amount of blade projecting. It is also desirable that the angle which the bevel on the razor blade makes with the paraffin block is small so that a true cutting and not a scraping action is obtained. In Fig. 1 is

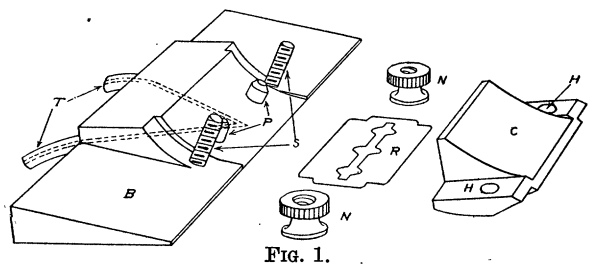

FIG. 1.

shown a blade holder which embodies these requirements.[3] The razor blade, R, fits over the pins, P, which project from a milled cylindrical surface in block B. The clamping block, C, is placed over the blade, the screws, S, passing through the holes, H, and is held down by the nuts, N. The bottom of the clamping block is a curved surface having a slightly greater radius of curvature than that in the block, B, to insure a tight clamping at the projecting edge. The pins, P, are eccentrically mounted so that by turning them the amount of blade projecting may be varied from 0.25 to 1.25 mm. The tubes, T, lead to a hole in the block lying just under the blade and are used for cooling the knife. For cutting thin sections in paraffin, cooling the knife by running cold brine through it will give a much better ribbon and less compression of the sections. The block is dimensioned to fit in the standard microtomes and is mounted so that the face toward the paraffin block is inclined 4°, which will give a clearance angle of about 8° to the cutting edge.

This holder has been in use for over a year and has proven entirely satisfactory. Using razor blades of several makes, it is possible to section whole insects, such as grasshoppers, butterfly pupae and insect eggs, when imbedded in paraffin. It is also possible to make 5 μ sections of plant material, such as insect galls, when imbedded in paraffin.

RODERICK CRAIG
CHARLES WILSON

INEXPENSIVE GREEN FILTERS

FILTERS which are quite satisfactory for the examination of tissues stained by the Feulgen method can be made by placing one or more thicknesses of green Cellophane between two large microscopic slides and binding the edges with lantern slide tape. Filters of different densities are obtained by varying the number of layers of Cellophane used.

ESTHER CARPENTER
SMITH COLLEGE

SPECIAL ARTICLES

HEREDITARY BRACHYDACTYLIA AND ASSOCIATED ABNORMALITIES IN THE RABBIT

DEFORMITIES of the hands and feet are among the oldest recognized hereditary variations in man. They have been reported in apparently unrelated families scattered throughout the world, and appear in a variety of forms ranging from minor brachydactylia to complete absence of hands and feet.

Investigations based on family histories have shown that these are dominant mutations, but the material available for study has been limited and not subject to experiment or control. The mating of individuals showing different forms of abnormality has not been recorded, and the genetic relation of this group of variations is uncertain.

Comparable variations have recently been encountered in the rabbit, and the occurrence of a series of deformities from brachydactylia to acheiropodia in a single line of animals indicates that in this instance they are expressions of a single primary mutation altered by modifying factors or of a closely linked group of genes. The appearance of the mutation in a laboratory animal naturally adapted to experimental procedures offers an approach to the study of the genetic relations of these abnormalities, and additional interest is attached to these affections because of a closely associated functional inferiority. The purpose of the present paper is to describe the variations as they occur in the rabbit and to report on the progress of genetic studies.

The first deformity of this order was discovered in the offspring of a brother-sister mating of apparently normal animals. These animals were hybrids derived from the crossing of a pure-bred English doe with a male of mixed breed for the purpose of studying the inheritance of a peculiar eye color. Both parental lines had been bred for generations, and there were instances in which matings had been made which should have disclosed the presence of the deformity in either line, but none occurred until the two lines were crossed as indicated above. Subsequently, the

[2] C. J. Chamberlain, "Methods in Plant Histology," University of Chicago Press.

[3] These holders may be obtained from J. R. Dempster, 2204 Glen Ave., Berkeley, Calif.