species eaten at various seasons and in various sections, and their economic relationships in the several parts of the state."

The forty-fifth meeting was brought to a close by the election of the following officers for the ensuing year:

President, Dr. Walter H. Bucher; *Vice Presidents—Zoology,* Dr. David F. Miller; *Botany,* Dr. Glenn W. Blaydes; *Geology,* Dr. Grace Ann Stewart; *Medical Sciences,* Dr. Charles A. Doan; *Psychology,* Dr. James R. Patrick; *Physics and Astronomy,* Dr. Charles W. Jarvis; *Geography,* Dr. Guy-Harold Smith; *Chemistry,* Dr. K. G. Busch; *Secretary,* William H. Alexander; *Treasurer,* Dr. A. E. Waller; *Members of the Executive Committee,* Dr. James P. Porter and Dr. Eugene Van Cleef.

WILLIAM H. ALEXANDER,
Secretary

THE IOWA ACADEMY OF SCIENCE

THE forty-ninth annual meeting of the Iowa Academy of Science was held with Grinnell College at Grinnell on April 19 and 20 with 249 members and visitors in registered attendance.

The presidential address, "This Changing World," was presented by Professor Edward Bartow, of the department of chemistry of the State University of Iowa. Other papers of general interest were: "The Neural Basis for a Psychogenetic Theory of Feeling and Emotion," by Professor C. A. Ruckmick, of the department of psychology of the State University of Iowa, and "Some Factors Affecting the Circulation Time of the Blood of Dogs," by Professor E. C. McCracken, of the department of physics of Iowa State College. The annual academy lecture was presented by Dr. Leroy C. Stewart, of the Dow Chemical Company, of Midland, Michigan. His subject, "The Magic Key," described and illustrated the production of bromine from sea-water.

The following officers and section chairmen were elected for the forthcoming meeting, which is to be held at Iowa City in April, 1936: *President,* R. E. Buchanan, Iowa State College; *Vice-President,* L. P. Sherman, Grinnell College; *Secretary-Treasurer* and *Representative of the American Association for the Advancement of Science,* J. C. Gilman, Iowa State College; *Editor,* Mrs. F. W. Nichols, Ames, Iowa; *Bacteriology and Botany,* H. A. Wilson, Coe College; *Chemistry, general and physical,* William Oelke, Grinnell College; *Chemistry, organic and biological,* Rachel Edgar, Iowa State College; *Geology,* J. E. Smith, Iowa State College; *Psychology,* A. R. Lauer, Iowa State College; *Mathematics,* Julia Colpitts, Iowa State College; *Physics,* Gerald Fox, Iowa State College; *Zoology,* U. A. Hauber, St. Ambrose College.

The academy convened in eight sections for the presentation of 117 papers of special interest. The Junior Academy of Science of Iowa met with the academy with an attendance of 150 members aside from the Grinnell High School students. Dr. R. W. Getchell, of the Iowa State Teachers College, Dr. W. F. Loehwing, of the State University of Iowa, and Dr. E. W. Lindstrom, of the Iowa State College, presented talks on their program.

JOSEPH C. GILMAN,
Secretary.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN ILLUMINATOR FOR THE BINOCULAR DISSECTING MICROSCOPE

FOR viewing a transparent object by transmitted light with a binocular dissecting microscope, the ordinary artificial light sources do not easily provide equal illumination to both eyes. This difficulty has frequently been of considerable importance in the examination of nematode larvae in uncovered drops of water, but it has been obviated by the use of the illuminator described here. The basic principle of this device consists of the use of two equal light sources placed at such a distance apart that the same mirror reflects both beams squarely into the corresponding objectives. The particular design used has several additional advantages. The entire system is enclosed as a dust-tight unit to improve its efficiency and save cleaning time. In spite of the complete enclosure, the exposed surfaces are large enough to dissipate the heat rapidly and at a sufficient distance from the operator to eliminate any discomfort even in the hottest weather. The light sources and all reflecting surfaces are entirely removed from the field of vision, an important factor in the reduction of eye strain.

The entire unit is mounted in a sheet tin box, 25 by 40 cm and 19 cm high, with a tight-fitting slip-over cover. The box is painted dull black inside and out. In the accompanying figure the component parts are shown approximately to scale in positions for a microscope placed with the center of the mirror 10 cm from the window. Two sockets with an identical pair of ordinary 25 watt, inside-frosted bulbs are mounted in

[1] The studies and observations on which this paper is based were conducted under the auspices of the Department of Public Health of the Egyptian Government and the International Health Division of The Rockefeller Foundation.

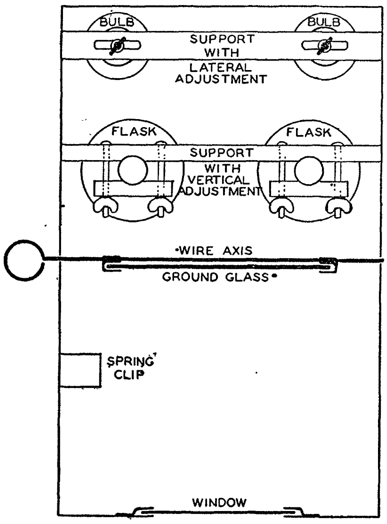

FIG. 1. Illuminator for viewing a transparent object by transmitted light with a binocular dissecting microscope.

inverted position on a wooden cross-piece in such a way as to provide for lateral adjustment. In front of the bulbs are two identical 500 cc flasks with alkaline copper sulfate solution. They are held in clamps to allow vertical adjustment and are at such a distance apart as to give a correct angle between the beams at the microscope mirror. In front of these flasks is a ground glass from a 5 by 7 inch camera. This glass is mounted in two pieces of folded tin soldered at the top to a heavy wire running through the two sides of the box and bent at one end to form a handle. By rotating this wire, the glass can be raised out of the beam of light into a horizontal position and held there by a spring clip. The window in front is 8 cm high and is made of a lantern slide cover or other piece of plane glass slid into a dust-tight groove.

In assembling the outfit care should be taken with regard to rotation of the bulbs so as to present the flat surface of the filament to the flasks. The distances between the bulbs and the flasks must be determined empirically according to the condensing focus of the particular flasks used. The other distances can be approximately determined from the distance at which the microscope is to be used, and by means of the clamps, final adjustment can be made to the position of greatest efficiency in actual use.

J. ALLEN SCOTT

PUBLIC HEALTH LABORATORIES
CAIRO, EGYPT

A MODIFIED BULB PIPETTE

WHILE isolating and transferring Protozoa with a pipette of the medicine dropper type, it occurred to the writer that the manipulation of the pipette might be made much easier if the rubber bulb were moved down over the pipette a short distance. This actually proved to be the case when pipettes of this type were made and used for various types of work. The writer has found no mention of such a modification in the literature and felt that a sketch and a few explanatory remarks as to the construction of the pipette might be of some value to others.

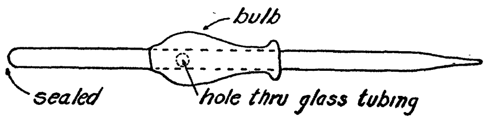

FIG. 1.

The pipette, shown in the accompanying figure, is not difficult to make. One end of a length of glass tubing is first sealed with a flame. The region where the bulb is to be placed is then heated with a small flame and a hole is blown through. The edges of the hole are then rounded down in the flame. A small hole is made in the end of an ordinary rubber pipette bulb, and the bulb is pushed down over the glass tubing. It is placed in such a position that the chamber of the bulb will communicate with the lumen of the pipette by means of the hole previously made in the side of the tubing. To insure a tight fit, cord or fine wire may be wrapped and drawn up over either end of the bulb. The open end of the glass tubing is then heated and drawn out.

The size and kind of glass tubing, as well as the length of the pipette, the size of the point, and the place for the bulb will depend upon the preference of the user and the use to which the pipette is to be put.

JOHN C. LOTZE

OHIO STATE UNIVERSITY

NEW TOWER FILLING MATERIAL

MANY types of tower packing are at present available for such purposes as filling reaction, absorption and distilling towers. The author has recently developed a novel form which is free draining and presents a large active surface per unit volume. It consists of a maltese cross whose wings have been rotated a sufficient number of degrees (for example, thirty degrees) to impart a rotating motion to the gas passing through the packing. This packing may also be made in circular form, with two or more wings, in which case it roughly resembles a propeller. Projections or webs may be added for structural strength or to prevent too close contact between adjacent packing units. For example, the center may be considerably thickened so that if two units superimpose they will not touch at all points. Holes may be introduced for drainage. Two or more units may be connected by webs or other