The remaining Greenland station (6) is that of a party of Norwegian hunters supplied with pilot balloons at their station of Mygbukten (Mackenzie Bay) in latitude 73°, where they are operating under the auspices of the Meteorological Institute of Oslo.

UNIVERSITY OF MICHIGAN WILLIAM H. HOBBS

SCIENTIFIC APPARATUS AND LABORATORY METHODS

APPROXIMATE METHOD FOR DETERMINING THE SAME DEGREE OF ANESTHESIA FOR FISH

THIS method is primarily one of electrical stimulation. While it is not hair-splitting in accuracy, still it is very reliable, the criterion for this statement being the number of times the anesthetizing time for any particular fish in the same strength solution checks. The accuracy of this method, of course, depends a great deal upon the acuteness of the power of observation of the operator.

APPARATUS

Fig. 1 illustrates the apparatus used. This consists of a glass cylinder A fastened to a ring-stand by

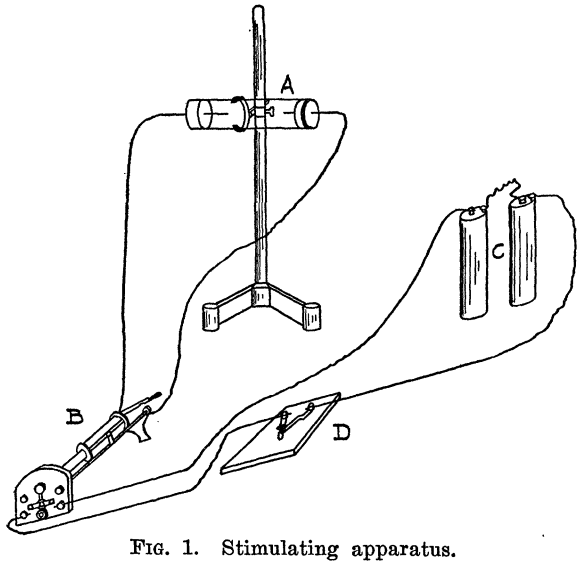

FIG. 1. Stimulating apparatus.

means of a clamp, induction coil B, two dry cells C, a simple key D and two copper stimulating electrodes leading from the secondary coil into the glass cylinder A. Cylinder A is sealed by two rubber stoppers through which the electrodes protrude. The stimulus consists of tetanic induced current from an inductorium receiving its current from the two dry cells. In order to insure the same strength of current (which has been previously determined to be the optimum stimulus), the secondary coil must always remain at the same position in the inductorium. The dry cells should also be tested at regular intervals with the voltmeter. The electrodes leading into the glass cylinder A should be cleaned thoroughly every time the apparatus is put into use. The interrupter points of the inductorium should be readjusted in order to maintain the pitch of the vibrator. The circuit is established by closing the simple key D.

TECHNIQUE

Cylinder A is placed in a vertical position and filled about four fifths full with the solution to be tested. The same number of cubic centimeters should be used each time. The fish is introduced immediately into the cylinder, at which time a stop-clock is started. The removable stopper is replaced and the glass cylinder returned to the horizontal position. After a second or so, depending upon the strength of solution, the fish is stimulated at intervals by pecking on the simple key D until it gradually becomes less and less irritable. Finally the response obtained will change from an active response of the whole fish to local muscular contractions of the tail at which point appear also, to a close observer, tremors comparable to "ether tremors" as reported by Hewitt.[1] It is a mistake to continue stimulating until no response is received, because in the majority of cases where this is done the fish will not recover.

It can then be seen by the above brief description that the success of this method depends upon (1) keeping the strength of current as nearly constant as possible; (2) the ability of the operator to recognize the transition from response of the fish as a unit to local contraction of the tail muscles, and (3) the recognition of the accompanying tremors.

D. J. VERDA
W. P. ELHARDT

PHYSIOLOGICAL LABORATORIES,
UNIVERSITY OF ILLINOIS

A NEW STAINING RACK FOR MICRO-SLIDES

THE rack here described and illustrated consists of a metal frame (D) appropriately slotted to receive a number of metal clips (A) of a particular design, which hold the micro-slides. The frame and clips are made of non-corrosive metal. However, no part of the rack, neither frame nor clips, is immersed in the staining bath. The clips are made of thin strips of an elastic metal folded lengthwise, the fold viewed on end having somewhat the bend of the traditional shepherd's crook. One side of the fold is wider and longer than the other; the projecting ends of this side, the upper borders of which are bent over in the

[1] Hewitt, "Anesthetics," p. 363, 1912.