To change the instrument from the working adjustment, Fig. I, to the pocket adjustment, Fig. II, the lens (1), and its bar (3), is placed horizontally, then (7) is reversibly inserted so as to conceal the lens and its operatives in section (8).

Section (9) in like manner when reversibly inserted encloses the exposed tool handles (10), within the other end of section (8).

The instrument thus folded and closed, Fig. II, may be carried in the student's pocket.

The pocket scope comprises five distinct advantages for nature lovers and general taxonomists.

1. Quick general observation is easily obtainable by adjusting the lens as in Fig. I, and pushing the tweezer backwards in its socket so as to clear the space under the lens, and then using the body of the instrument, sections 7, 8, 9, as a handle.

2. Detailed observation is made easy and delightful by placing the object to be examined within the grasp of the tweezer jaws where it can be held firmly in an easily shiftable position for dissection.

On one jaw of the tweezer is a shallow cup (a), on the face opposite (a) is a fine sharp needle point.

The cup may be used when examining spores or small seeds, the needle point may be used for holding small insects, etc.

3. The right hand is free for picking the object and recording the facts observed.

4. The dissecting instruments are pleasingly accessible at the rear end of the scope (10).

5. When the dissecting or observation is completed the scope may be easily closed up and conveniently carried in the pocket.

ELMER GRANT CAMPBELL
PURDUE UNIVERSITY

A SIMPLE RECORDING SPIROMETER

IN carrying on various metabolism experiments in our laboratory we have had occasion to make a large recording spirometer which is so simple in construction and easy to manipulate that we are describing it, hoping that other workers may benefit thereby.

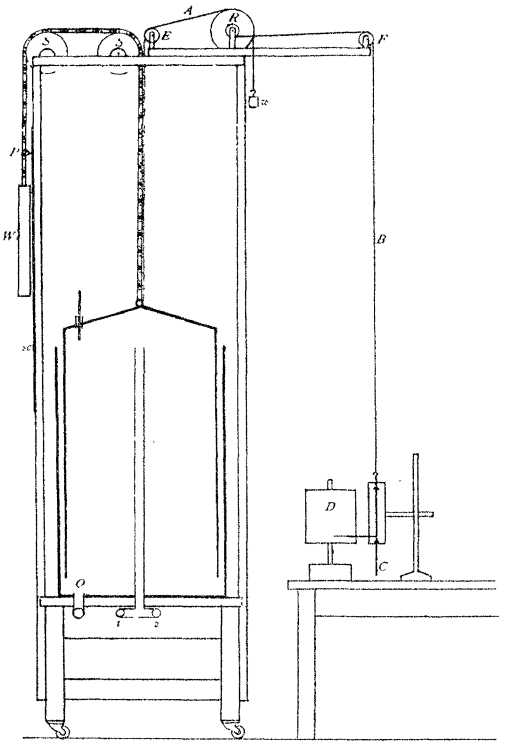
The outer tank consists of a large garbage can with inlet (I) and outlet (O) tubes one inch in diameter each provided with large stopcocks. The inlet tube has two vents (1 and 2) which facilitate emptying the air without disconnecting the breathing tube.

The float tank is made of thin sheet zinc and holds about 110 liters. A thermometer (T) records the temperature of the expired air.

We have made use of a much more simple plan than any spirometers we know of, to compensate for the additional weight of the float tank as it rises.

The Tissot type is cumbersome and should the tank fill rapidly complete compensation may not occur owing to the size of the siphon tube. The eccentric pulley type throws the line of support off center unless prevented by additional pulleys.

Our support consists of a roller sprocket chain. The weights, W and w, exactly balance the float tank when it is submerged. The large weight is made of water pipe which is closed at the lower end. This makes possible the addition of shot until a correct balance is obtained. As the tank rises its additional weight is compensated by fewer links on the tank side and added links on the weight side. Weight is thus



gradually taken from the tank side and added to the weight side at a rate which maintains uniform balance. The size of the chain therefore depends on the size and thickness of the float-tank. In our instrument an ordinary roller bicycle chain is just sufficient to compensate.

The recording device consists of two threads so placed as to lift a stylus which records on the drum. One thread (A) is attached to the top of the float-tank and passes over two pulleys, E and R. This thread is kept taut by a small weight (w) of 25 or 50 grams. A second thread (B) is wound around a bobbin on wheel R, passes over pulley F and is attached to a light rod, C. This rod slides easily in a vertical direction and carries the writing stylus. As the float-tank rises, wheel R is turned round and the writing stylus lifted. The ratio of the circumference to the bobbin of pulley R is such that when one liter of air enters the spirometer the writing stylus is lifted one millimeter. The record thus shows not only the rate at which the tank is being filled and the number of expirations, but also the amount in liters of air at any time as represented by the number of millimeters the stylus has risen from the base line.

All the pulleys turn on cone bearings, which reduces the friction to a minimum. The roller chain is well oiled and offers very little resistance. The whole apparatus is so sensitive and so easy to manipulate by students without special training that we recommend it to others for general laboratory use.

J. R. SLONAKER
PHYSIOLOGICAL LABORATORIES,
STANFORD UNIVERSITY

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE BIOLOGICAL SCIENCES

THE AMERICAN SOCIETY OF NATURALISTS

President, William M. Wheeler.

Secretary, A. Franklin Shull, University of Michigan, Ann Arbor, Mich.

(Reports by A. Franklin Shull and Herbert W. Rand)

The sessions of the American Society of Naturalists presented two unified programs. One was in celebration of the one hundredth anniversary of the birth of Francis Galton and Gregor Mendel, two outstanding figures in the development of biology, particularly genetics, in the past sixty years. The speakers on this program were E. M. East, T. H. Morgan, J. Arthur Harris and George H. Shull. The other program of this society was a symposium on geographic distribution of animals.

The annual dinner was one of the most successful and most largely attended the society has ever had. Following the dinner, Professor W. M. Wheeler, of the Bussey Institution of Harvard University, gave his presidential address on "Academic biology." At the close of the address Professor C. H. Eigenmann, of Indiana University, called upon informally, sketched a dream of a recent visit to Hades. He found that scientific men, condemned to this lower region by their mundane brethren of orthodox faith, had introduced an extensive refrigeration system and, by application of their scientific knowledge, had otherwise so improved the old place that living conditions were really better than in the abode of the blessed.

THE ECOLOGICAL SOCIETY OF AMERICA

President, Forrest Shreve.

Secretary, A. O. Weese, James Millikin University, Decatur, Ill.

(Report by A. O. Weese)

The Ecological Society of America held three independent sessions and three joint sessions, including a symposium on "Geographical distribution" with the American Society of Zoologists and the American Society of Naturalists. Joint sessions were held with the American Society of Zoologists and the Botanical Society of America. The Wednesday afternoon session was devoted to a program of papers presented by invitation and covered many of the phases of modern ecology. The following papers were of special importance: "The utilization of energy by plants," by E. N. Transeau; "Insects affecting stored food products as a source of ecological data," by Royal U. Chapman; "The recent ecological history of Glacier Bay, Alaska," by William S. Cooper; and "Maintenance of wild life in our national parks," by C. C. Adams.