ment of Agriculture, gave an illustrated public address on "The Social Aspects of Forestry in the South."

The session on Saturday morning was devoted to a symposium on "Stimulation of Scientific Interest at the Level of the High School," under the sponsorship of the recently organized Junior Academy Section of the New Orleans Academy. On Saturday night Dr. A. B. Cardwell, of the Tulane University Department of Physics, gave a demonstration of the properties and effects of liquid air before a large audience of high-school science students, as a part of Junior Academy activities.

The total attendance at all meetings was more than 800.

At the business meeting Dr. Rudolph Matas and Dr. Brandt Van Blarcom Dixon, both past presidents of the academy, were unanimously elected honorary members, by elevation from the rank of regular member. Twenty-eight new regular members were also elected. The officers elected for the coming year are: E. L. Demmon, United States Forest Service, *President;* Dr. H. H. Beard, Louisiana State University Medical Center, *Vice-President;* Philip C. Wakeley, U. S. Forest Service, *Secretary;* Dr. D. S. Elliott, Tulane University, *Treasurer.*

PHILIP C. WAKELEY,
Secretary

THE OKLAHOMA ACADEMY OF SCIENCE

THE twenty-third annual meeting of the Oklahoma Academy of Science was held at the University of Oklahoma, Norman, on December 7 and 8. The academy program was divided into four sections which were as follows: Biology, Geology, Physical Sciences and Social Sciences. One hundred and twenty-two papers were presented. A special section was arranged for high-school science teachers.

Chancellor E. H. Lindley, of the University of Kansas, gave the annual address on Friday evening in the University Auditorium. The subject of this lecture was "Science Confronts Two Worlds." Dr. Lindley spoke again on Saturday morning on "A New Frontier."

Dr. Frank G. Brooks gave the presidential address after the luncheon on Saturday. His subject was "The Place of the Physical and Biological Sciences in the Liberal Arts Curriculum."

More than 300 people were present at the meetings. The officers elected for 1934–1935 were as follows:

President: Dr. C. E. Decker, University of Oklahoma, Norman.
Vice-president, Section A (Biology): Dr. John G. Mackin, East Central Teachers College, Ada.
Vice-president, Section B (Geology): Elmer L. Lucas, Phillips University, Enid.
Vice-president, Section C (Physical Sciences): Mrs. E. S. Hammond, Oklahoma College for Women, Chickasha.
Vice-president, Section D (Social Sciences): Dr. J. T. Sanders, Oklahoma A. & M. College, Stillwater.
Assistant Secretary-Treasurer: Dr. Geo. Van Lear, Oklahoma University, Norman.

HORACE J. HARPER,
Secretary

THE SOUTH CAROLINA ACADEMY OF SCIENCE

THE South Carolina Academy of Science held its twelfth annual meeting at the University of South Carolina on April 6. The meeting was well attended and the secretary reported that the membership of the academy had been doubled within the last two years. The meeting next year will be at Winthrop College, Rock Hill. At the business meeting of the session, the following officers were elected for the ensuing year:

President: Professor Franklin Sherman, Clemson Agricultural College.
Vice-president: Professor A. C. Carson, University of South Carolina.
Secretary-Treasurer: J. E. Copenhaver, University of South Carolina.
Executive Committee: Professor J. A. Osteen, Furman University; Dr. F. W. Kinard, Medical College of South Carolina; Dr. W. W. Rogers, Winthrop College.

J. E. COPENHAVER,
Secretary and Treasurer

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A COMMUTATOR FOR THE HARVARD KYMOGRAPH[1]

A NEED was felt for a dependable circuit breaker that could be attached to a kymograph without necessitating tearing it apart each time it was to be used. Previous attempts at using various makeshift "trigger" attachments led to the construction of the apparatus described here.

In many physiological experiments it becomes desirable to stimulate a preparation at exactly the same location of the drum at each rotation. In others, a key that will be automatically opened or closed on the swiftly moving drum is often advantageous. Also in a great number of routine experiments in which the

[1] From the department of physiology, Purdue University, Lafayette, Indiana.

single throw key is used, the wiring can be simplified by the use of a commutator attached to the kymograph. For example, in the fundamental experiment of determining the phases of a single muscle twitch, the use of the commutator obviates the necessity of the signal magnet to mark the point of occurrence of the stimulus. After the twitch has been recorded on the revolving drum the point where the stimulus entered can be shown quite easily on the same record by turning the drum around to a point just preceding that of entry of the stimulus. Now if the drum is run at its slowest speed until the contact is made, the muscle will again contract and thus mark the point of entry of the make or break shock. Also the arc of the muscle lever will be recorded so that errors due to it can be compensated for on the original record. Thus the commutator simplifies the above experiment by reducing the electrical wiring, eliminating the signal magnet and its additional "scratch marks," and giving a single tracing for the muscle twitch and the occurrence of the impulse, besides picturing the arc of the muscle lever. In many other experiments simplification of wiring and more positive electrical contacts can be produced.

The construction of the commutator is as follows. A brass collar (1, Fig. 1) of slightly greater diameter

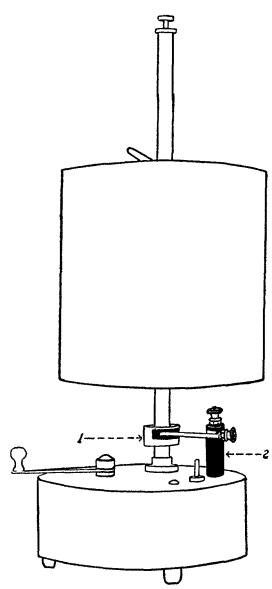

FIG. 1.

than the base of the upright stand is fastened to the shaft of the drum by a countersunk set screw. One half of the circumference of this collar is insulated by an inset piece of bakelite. Then the collar is turned and polished to insure good edges since these are necessary for perfect contacts. All metal parts can be plated to give a more pleasing effect, if so desired. A bakelite binding post (2, Fig. 1) is then mounted in place of one of the three machine screws found on the top of the base of the kymograph. A long machine screw passes into this base and affords the "ground" contact. The upper end of this machine screw is fitted with nuts which hold the post in position and serve as a binding post.

The second contact consists of a strap of brass bound around the bakelite post and making a sliding contact with the collar (1). A slight tension of the brass strip affords a good contact and in no way impedes the turning of the drum. If the commutator is not to be used the bakelite post (2) can be turned slightly to disengage the strap from the rotor. For the sake of simplicity in the accompanying diagram the stop lever and fan have been omitted from the sketch, although they do not interfere with the apparatus in any way.

By varying the position of the secondary coil of the inductorium, threshold make and break shocks can be obtained, and thus one or two stimuli per rotation of the drum can be had at will.

The author acknowledges the assistance of the university technician, W. E. Fish, in the designing and constructing of the commutator.

WM. A. HIESTAND

MENINGOCOCCUS PRECIPITATING ANTIGEN FOR ROUTINE TESTING OF THERAPEUTIC SERUMS[1]

ONE of the generally used methods of standardizing the potency of anti-meningococcus therapeutic serums is the determination of their precipitating titers. It is therefore necessary to have a highly specific antigen and one that could be kept for a long time without appreciable deterioration. After considerable experimentation with different preparations, the following preparation gave us the desired results.

Meningococcus cultures of standard types are grown on 0.5 per cent. glucose beef-heart agar, pH 7.2 to 7.4. Several successive transplants are made at 24-hour intervals. Then a 24-hour growth is scraped into sterile physiological saline, the suspension is shaken by hand and filtered through a thin layer of sterile absorbent cotton to eliminate particles of agar that may have been carried over. The filtered saline suspension of the cocci is centrifuged at high speed until the cocci are precipitated. The supernatant fluid is discarded and the cocci are suspended in sterile distilled water, using ten times the volume of water to each volume of packed cocci. To this 10 per cent. of commercial antiformin is added and the mixture is placed in boiling water until the cocci are

[1] From the Bureau of Laboratories, New York City Department of Health; Director, Dr. Wm. H. Park.