

SCIENCE

VOL. LXI

MARCH 27, 1925

No. 1578

THE STUDY OF EARTH MOVEMENTS IN CALIFORNIA¹

CONTENTS

| | |
|--|-----|
| <i>The Study of Earth Movements in California:</i> DR. ARTHUR L. DAY | 323 |
| <i>The Second General Assembly of the International Geophysical Union:</i> PROFESSOR HARRY FIELDING REID | 328 |
| <i>In Memoriam—Sir Thomas Clifford Allbutt:</i> LT. COLONEL F. H. GARRISON | 330 |
| <i>Scientific Events:</i> | |
| <i>John Fillmore Hayford; The Eastern New York Section of the American Chemical Society; The National Institute for Research in Colloid Chemistry; Sigma Xi Aid to Research; The Pacific Division of the American Association for the Advancement of Science</i> | 332 |
| <i>Scientific Notes and News</i> | 335 |
| <i>University and Educational Notes</i> | 339 |
| <i>Discussion and Correspondence:</i> | |
| <i>Market Charts and the Law of Supply and Demand:</i> DR. P. G. NUTTING. <i>Two Fatal Cases of Potato Poisoning:</i> ALBERT A. HANSEN. <i>So-called Salmon Poisoning of Dogs:</i> C. R. DONHAM | 339 |
| <i>Scientific Books:</i> | |
| <i>Schuster and Nicholson on the Theory of Optics and Houstoun on Light:</i> DR. HERBERT E. IVES..... | 341 |
| <i>Scientific Apparatus and Laboratory Methods:</i> | |
| <i>Detecting and Estimating Small Amounts of Acetone:</i> PROFESSOR LOUIS KAHLBERG | 344 |
| <i>Special Articles:</i> | |
| <i>Mercury and Ionized Helium:</i> DRS. S. C. LIND AND D. C. BARDWELL. <i>The Native Host of the Chigger:</i> AUGUST E. MILLER | 344 |
| <i>The American Association for the Advancement of Science:</i> | |
| <i>Agricultural Sciences at the Washington Meeting</i> 346 | |
| <i>Science News</i> | x |

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

Lancaster, Pa.

Garrison, N. Y.

New York City: Grand Central Terminal.

Annual Subscription, \$6.00. Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.

It has been the custom for a number of years for the retiring president to present in brief review a field of activity with which he has been associated rather than to undertake the detailed exploitation of any particular problem. I have therefore chosen to give some outline of an effort which has been in progress for four or five years only, but which is particularly appropriate to present in this time and place because there are so many in Washington who have been associated with it.

The present study of earth movements in California is planned to be of broader scope than a mere statistical study of earthquakes. It is intended to do somewhat more than record tremors with the seismograph, in order, by comparison with other similar records, to trace the path of the waves to a common center of disturbance, and so to obtain information about the manner of their transmission through the interior of the earth. This is a part of the project as heretofore, but we have wished to investigate not only the tremors which may be picked up here or there and their path traced to a distant point of origin, but their probable causes, the earth movements at the source, cumulative mass movements through which the enormous strains are set up and not alone the disturbances which indicate their release.

The particular project, out of which the present undertaking grew, started with Mr. Harry O. Wood, known to many of you as acting secretary of the Geophysical Union, following the war period; before that as the assistant in charge of the Seismological Station at the Kilauea Observatory, where he successfully recorded and analyzed local shocks of volcanic origin; before that as an assistant to Professor Lawson, at the University of California, and one of the collaborators in the preparation of the great monograph on the San Francisco earthquake of 1906. Guided by this experience, Wood prepared and published in the *Bulletin* of the Seismological Society a very elaborate project for the study of cumulative stresses and local earth movements in California on an extensive scale. Some of you may have read the scheme which he offered. It contemplated stations at intervals of 50 miles throughout the West Coast region and continuous observations over a period of years. Altogether, it was rather too extensive a project for any available agency and so after

¹ Address of the president of the Washington Academy of Sciences, January 13, 1925.

P. BLAKISTON'S SON & CO., PHILADELPHIA

Brubaker—Textbook of Physiology 8th Edition

By ALBERT P. BRUBAKER, A.M., M.D., LL.D.,

Professor of Physiology and Medical Jurisprudence, Jefferson Medical College, Philadelphia
With A Section On Physiologic Apparatus

367 Illustrations. 8 vo XII + 853 Pages. Cloth, \$5.00 Postpaid.

A number of revisions have been made and much new material incorporated in the present volume. The book stresses the practical points of Physiology which are of value to the physician and student of medicine. Some new diagrams have been included and the whole work brought thoroughly up to date.

Patten—Early Embryology of the Chick 2nd Edition Revised

By BRADLEY M. PATTEN,

Associate Professor of Histology and Embryology, School of Medicine,
Western Reserve University

64 Illustrations. 8 vo XI + 177 Pages. Cloth, \$2.25 Postpaid.

"This little book consists of an untechnical description of the development of the chick during the first four days of incubation, during which period the principal organ systems of the body are established. As it is designed particularly for the beginner in the study of embryology, all unessential details have been omitted and the discussion limited to the fundamental processes involved. The well-executed and fully labelled diagrams make as easy as possible the student's path through one of the most difficult, although one of the most fascinating, fields of biology."—*American Journal of Science*.

Pratt—Manual of Land and Fresh Water Vertebrate Animals of the United States [Excluding Birds]

By HENRY SHERRING PRATT,

David Scull Professor of Biology, Haverford College, Pa.

An Indispensable Reference Work for Biologists, With 184 Illustrations, Map, Glossary,

Bibliography, Keys, etc. Cloth, \$6.00 Postpaid.

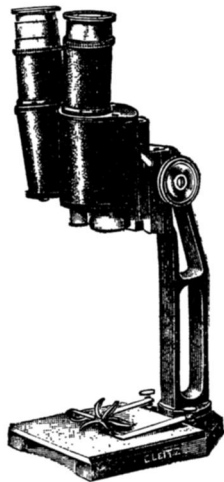
It furnishes diagnostic descriptions of the land and fresh water vertebrate animals of the United States, together with analytical keys by means of which they can be readily identified and their affinities determined. It is a modern manual of the fishes, amphibians, reptiles and mammals of the country, giving the accepted scientific names of species, as well as of the larger groups to which they belong, and reflecting the recent advances in our knowledge of their life, and their geographical distribution. The region covered by this work is the whole of the United States between the Canadian and Mexican borders and the southern portion of Canada.

P. BLAKISTON'S SON & CO.

PUBLISHERS

1012 Walnut Street

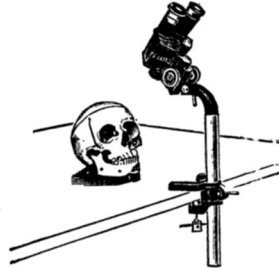
PHILADELPHIA, PA.



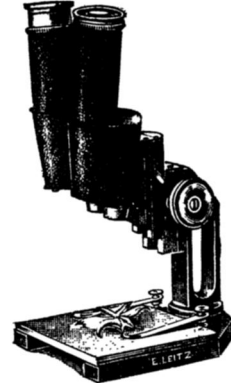
Model "BSM-B"



Model "BSM-D"



Model "BSM-F"



Model "BSM-C"

LEITZ

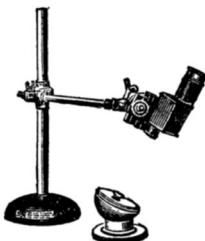
Binocular Stereo Microscopes

The Latest and Ideal Microscope for College Laboratories

*Large Field Stereoscopic Vision
Long Working Distance*



Model "BSM-M"



Model "BSM-I"

Impressed with the ever increasing importance of Binocular Vision applied to Microscopes, the Leitz Works have through constant contact with the Scientific Profession, been made to realize that through the development of microscopical instruments of comparatively low power, rendering stereoscopic images, possessing large working distance and large field of view, a long felt demand can be accommodated and furthermore the area of microscopical investigations be widened to an extent of which one had no conception.

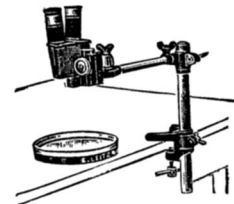
With this in mind the Binocular Stereo Microscopes have been constructed and through the most favorable reception received, are destined to revolutionize Microscopy in College Laboratories.

The Binocular Bodies—one for high, the other for low power—can be used interchangeably in connection with the various stands illustrated, and in offering such a variety of stands, any individual desire and need can be readily accommodated.

Write for Pamphlet No. (0) 1060.



Model "BSM-E"



Model "BSM-H"



Model "BSM-L"



60 EAST 10TH ST.

AGENTS:

Pacific Coast States: SPINDLER & SAUPPE, 86 Third St., San Francisco, Cal.

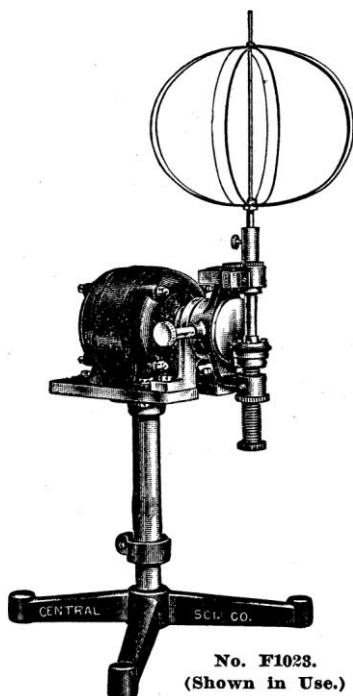
Canada: J. F. HARTZ CO., Ltd., Toronto, Canada.

Philippine Islands: BOTICA DE SANTA CRUZ, Manila, P. I.

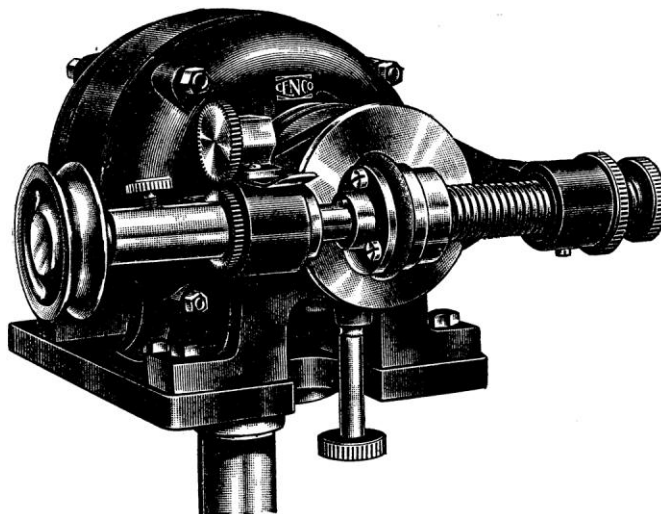
Cuba: TEXIDOR CO., Ltd., Habana, Cuba.

CENCO POWER ROTATOR

For the Lecture Table



No. F1023.
(Shown in Use.)



Enlarged View of Rotator of No. F1023, Showing
Details of Speed Control Mechanism, Speed
Counter and Pulley.

In designing this rotator we have brought together the points of view of the user and of the manufacturer of scientific apparatus. Thus full consideration was given to all requirements in a rotator from the point of view of both the instructor and the designer with the result that many excellent features were brought within the possibility of economical production. We enumerate below the most prominent features of design, the combination of which in a single rotator has been accomplished for the first time in the Cenco Lecture Table Rotator.

1. All speeds from zero to maximum (2500 r. p. m.) in both directions, in infinitesimal steps, are made possible by the Cenco-improved friction drive transmission.
2. The speed is adjustable while the motor is running and the transmission mechanism can be instantly clamped to maintain the desired speed indefinitely.
3. The spindle rotates in ball bearings so that there is very small loss of power in the transmission.
4. The material of the friction disk was selected, after many tests, for its excellent wearing properties and great traction.
5. The friction drive plate may be clamped out of contact with the friction disk when the rotator is not in use. This prevents development of flat sections of the friction disk and facilitates changing disks when these become worn.
6. The spindle of the rotator may be clamped in any position throughout 360°. This permits demonstrations not possible with other rotators.
7. The combined rotator and driving motor are mounted on a stable tripod base with adjustable vertical support which renders the experiments visible to the entire class. In other rotators the demonstration takes place either at or below the level of the table.
8. The motor is rated at 1/10 h. p., and this power is transmitted with very little loss to the spindle; thus nearly the full rated power of the motor becomes available at any desired speed of rotation.
9. The rotator because of excellent design and construction runs quietly. This point has particular value in the lecture room.
10. A grooved pulley for round belt is furnished with the rotator, thus making its power available for operating mechanisms of various kinds which are not designed for direct attachment to the rotator.

Dimensions are as follows: Height over all above table, adjustable from 45 to 60 cm; table space occupied, 37 x 37 cm; power of motor, 1/10 h. p.; speed of motor, 1725 r. p. m.; diameter of pulley furnished, about 4.5 cm.

Complete as described, with socket, pulley and spindle with lock-nut for usual rotator accessories.

| No. | A | B | C | D |
|-----------|----------|----------|----------|----------|
| | A. C. | | | |
| For volts | 110 | 220 | 110 | 220 |
| Each | \$100.00 | \$102.00 | \$100.00 | \$105.00 |

CENTRAL SCIENTIFIC COMPANY

LABORATORY SUPPLIES

Apparatus Chemicals

460 E. Ohio St.,

Chicago, Ill.

U.S.A.