

SCIENCE

VOL. 98

FRIDAY, DECEMBER 10, 1943

No. 2554

<i>The Mexican Volcano Parícutin:</i> DR. PARKER D. TRASK	501
<i>Presentation of the Sedgwick Memorial Medal</i>	505
Obituary:	
<i>Elmer Darwin Ball:</i> DR. CHAS. T. VORHIES. <i>Deaths and Memorials</i>	506
Scientific Events:	
<i>The Proposed Development of Wayne University; Rare Chemicals; The Sugar Research Foundation; The Alabama Academy of Science; Awards of the American Society of Mechanical Engineers</i>	508
<i>Scientific Notes and News</i>	511
Discussion:	
<i>Tryptophan and Phytohormone Precursors:</i> PRO- FESSOR GEORGE S. AVERY, JR. and DR. JULIUS BERGER. <i>The Roots of Spinal Nerves:</i> DR. DONALD DUNCAN. <i>Taxonomy and Genonomy:</i> PROFESSOR CARL EPLING. <i>Isolation of Influenza A by Intra- allantoic Inoculation of Untreated Throat Wash- ings:</i> MINNIE THIGPEN and JAMES CROWLEY	513
Scientific Books:	
<i>Naturalist at Large:</i> PROFESSOR T. D. A. COCK- ERELL. <i>Developments in Science:</i> DR. S. A. KORFF	516
Special Articles:	
<i>Retardation of Rancidity by Sulfhydryl Com- pounds:</i> DR. PAUL GYÖRGY, DR. ERIC T. STILLER and DR. MARTIN B. WILLIAMSON. <i>Vitamin B₆ De- ficiency Anemia in the Dog:</i> SUSAN GOWER SMITH, ROBERT CURRY and HAROLD HAWFIELD	518
Scientific Apparatus and Laboratory Methods:	
<i>Technique for Stroboscopic Studies of Insect Flight:</i> DR. CARROLL M. WILLIAMS and DR. LEIGH E. CHADWICK. <i>The Coagulum-Contact Technic in Traumatic Rupture of the Liver in Dog and Man:</i> DR. MACHTELD E. SANO and DR. CLARENCE A. HOLLAND	522
<i>Science News</i>	8

SCIENCE: A Weekly Journal devoted to the Advance-
ment of Science, edited by J. MCKEEN CATTELL; WARE
CATTELL, assistant editor. Published every Friday by

THE SCIENCE PRESS

Lancaster, Pennsylvania

Annual Subscription, \$6.00

Single Copies, 15 Cts.

SCIENCE is the official organ of the American Associa-
tion for the Advancement of Science. Information regard-
ing membership in the Association may be secured from
the office of the permanent secretary in the Smithsonian
Institution Building, Washington 25, D. C.

THE MEXICAN VOLCANO PARICUTIN¹

By Dr. PARKER D. TRASK

U. S. GEOLOGICAL SURVEY

THE new volcano in Mexico, El Parícutin (pro-
nounced Pah-ree-koo-teen) is a unique geological
phenomenon; for, before our very eyes, it has sprung
into existence and has grown to a very respectable
height of 1,500 feet, all within a period of 8 months.
It lies within a region in which no previous volcanic
activity has been known within the memory of man,
though in 1759 the volcano El Jorullo, some 50 miles
to the southeast, likewise suddenly was born, grew to
a height of more than 1,000 feet within 5 months, and
then quieted down, never more to erupt violently.
Will Parícutin do likewise? That remains to be seen,
for at present it is still going strong.

For the first time in their lives geologists have been
able to observe in a single volcano all stages of its
history. Parícutin exhibits many of the features of

¹ Address presented before the Geologic Section of the
New York Academy of Sciences in New York, October 4,
1943. Published by permission of The Director, Geologi-
cal Survey, U. S. Department of the Interior.

other volcanoes; but other volcanoes have been encoun-
tered by geologists after they have been in existence
for some time, and their early history is unknown.
The early history of Parícutin therefore fills impor-
tant gaps in our understanding of volcanism.

To me the most outstanding aspect of this volcano
is the incredible rapidity with which it grew. Within
one week it was 550 feet high and within 10 weeks
it was 1,100 feet in altitude. Up to this time, all the
material in its cone had come from fragments that had
been blown into the air from the volcano. No lava
came from the cone until nearly four months after
the eruption started; and then, contrary to some popu-
lar reports, it did not flow over the lip of the crater.
Instead, it broke through the sides of the cone, under-
mining the overlying fragmental material. Lava ap-
peared within two days of the first explosion, but it
issued quietly from a fissure about 1,000 feet north
of the explosive vent.

wing-beat under a variety of experimental conditions. Many hundreds of reliable measurements may be accomplished on each individual during intermittent flights having durations of 3 to 5 seconds, separated by adequate periods of rest (about 20 seconds). Under carefully controlled conditions the variability of such determinations on a single individual is generally less than one per cent. For 24 strains of *Drosophila* the coefficient of variability among different individuals of single strains was found to average 3.10 per cent.⁸ Useful information in regard to metabolism and fatigue can be obtained in terms of the progressive changes in wing-beat frequency during continuous flight.⁵ The principle of the apparatus has also been adapted for measurements correlating wing-beat frequency with respiratory exchange.⁸

LEIGH E. CHADWICK

ANESTHESIA LABORATORY OF THE HARVARD
MEDICAL SCHOOL AT THE MASSACHUSETTS
GENERAL HOSPITAL, BOSTON, MASS.

LEIGH E. CHADWICK

DEPARTMENT OF PHYSIOLOGY,
UNIVERSITY OF ROCHESTER SCHOOL OF
MEDICINE AND DENTISTRY

THE COAGULUM-CONTACT TECHNIC IN TRAUMATIC RUPTURE OF THE LIVER IN DOG AND MAN

At the suggestion of Dr. W. Wayne Babcock, it was decided to extend the principles involved in the coagulum-contact technic of skin grafting¹ to the control of bleeding and the promotion of healing in traumatic injuries of the liver and spleen. In the past it has been customary to sew the opposing surfaces of the liver together. This frequently promotes rather than controls bleeding. Likewise the packing of the injured field is often complicated by bleeding at the time the packing is removed. The new method presents neither of these difficulties.

Equal quantities of plasma and cell extract (autogenous, homologous or heterogenous) are mixed together just before using. The bleeding surfaces of the liver which are to be joined are exposed and the mixture is rapidly brushed over both surfaces with a sterile camel hair brush. The surfaces are firmly held together for about three minutes. They are then released and will adhere firmly to one another. If the bleeding is still present in poorly apposed parts, some of the mixture is brushed over these areas and left to coagulate. If there is profuse bleeding the brush may

⁸ L. E. Chadwick and D. Gilmour, *Physiol. Zool.*, 13: 398-410, 1940.

¹ M. E. Sano, *Am. Jour. Surg.*, lxi, 105-106, 1943. This new method of skin grafting using plasma and cell extract to form an adhesive and growth-stimulating coagulum is being used not only at Temple University Hospital but at other hospitals with very good results.

be held over the site of bleeding for one to two minutes. On microscopic examination, three days later, fibroblasts are seen to have proliferated in the coagulum formed. Five days after operation, small sinuses appear in certain sections. By the end of ten days, it is often difficult to find the line of incision on gross inspection of the specimen. Microscopically, one finds these areas well organized with very little evidence of damage to the adjacent liver cells.

Damaged surfaces of liver will adhere to one another on pressure without the interposition of plasma and extract. However, oozing does not stop so readily and when profuse bleeding occurs at the inner angle of two opposed surfaces where it is difficult to exert pressure, it is almost impossible to stop the bleeding by pressure alone. While adhesion has been 100 per cent. when using the plasma-extract mixture on fifteen dog livers and one human liver, the liver in three (or 20 per cent. of the cases) had to be restuck when no plasma-extract was used. In no case did the dog bleed to death with either method.

Similar experiments have been carried out on the spleens of dogs. Here the plasma extract gives definitely superior results but neither method is as satisfactory as in the liver. Due to the intrinsic structure of the spleen itself, infarctions are apt to occur. Again, no death actually occurred due to hemorrhage but healing was slow and unsatisfactory.

This new method is extremely simple and uses the physiologic principles of blood clotting and wound healing thus eliminating any extraneous factors which might complicate and endanger the individual's life in some other way. It is hoped that this method may be of use in the treatment of war wounds.

MACHTELD E. SANO

CLARENCE A. HOLLAND

DEPARTMENTS OF PATHOLOGY AND SURGERY,
TEMPLE UNIVERSITY HOSPITAL AND
SCHOOL OF MEDICINE

BOOKS RECEIVED

- EDDY, SAMUEL and THADDEUS SURBER. *Northern Fishes with Special Reference to the Upper Mississippi Valley*. Illustrated. Pp. xi + 252. The University of Minnesota Press. \$4.00.
- JAMIESON, GEORGE S. *Vegetable Fats and Oils*. Pp. 508. Reinhold Publishing Corporation. \$6.75.
- MACDUFFEE, CYRUS COLTON. *Vectors and Matrices*. Pp. xi + 192. Open Court Publishing Co., La Salle, Ill. \$2.00.
- Pain*. Research Publication of the Association for Research in Nervous and Mental Disease. Illustrated. Pp. xii + 468. Williams and Wilkins Company. \$7.50.
- RAINVILLE, EARL D. *Intermediate Differential Equations*. Illustrated. Pp. vi + 211. John Wiley and Sons. \$2.75.
- SPICER, WILLIAM M., WILLIAM S. TAYLOR and JOE D. CLARY. *General Chemistry Problems*. Illustrated. Pp. v + 120. John Wiley and Sons. \$1.25.

NEW WILEY BOOKS

INDEX FOSSILS OF NORTH AMERICA

By HERVEY W. SHIMER, *Professor Emeritus of Paleontology*, and ROBERT R. SHROCK, *Associate Professor of Geology*; both at *Massachusetts Institute of Technology*.

Replacing the original Grabau and Shimer's "North American Index Fossils," this is a reference work for lecture and laboratory study in advanced courses in paleontology. It will also be of value for various theses investigations in paleontology and stratigraphy. No comparable book exists: There are over 8,000 individual illustrations; approximately 7,500 species are described and figured. Specialists in nearly all the larger divisions have either revised the material in the book or have assisted the authors in doing so. Ready in January.

Approx. 729 pages; Profusely illustrated; 7½ by 10½; Probable Price, \$20.00

PHOTOMICROGRAPHY Theory and Practice

By CHARLES P. SHILLABER.

The most comprehensive treatment of the subject in any language. A large part of the content is devoted to the actual procedures to be followed, with explanations of how to obtain the best results on various kinds of subject matter. The book covers the adjustments and various techniques relating to the microscope and the illuminating system; the use of sensitive material; and the preparation of the specimen. Ready in January.

Approx. 726 pages; 359 illus.; 5½ by 8½; Probable price, \$7.50

QUANTUM CHEMISTRY

By HENRY EYRING, *Professor of Chemistry, Princeton University*; JOHN WALTER, *Instructor in Physics, Princeton University*; and GEORGE E. KIMBALL, *Assistant Professor of Chemistry, Columbia University*.

An advanced treatment of the subject. Although the book contains most of the material usually offered in the introductory books in quantum mechanics, it goes farther in applying the results to chemistry. It includes treatments of the theory of reaction rates, optical activity, molecular structure, spectroscopy, and group theory. Ready in January.

Approx. 386 pages; 48 illus.; 5½ by 8½; Probable price, \$5.00

APPLICATIONS OF ELECTROCHEMISTRY

By W. A. KOEHLER, *Professor of Chemical and Ceramic Engineering, West Virginia University*. Volume II of "Principles and Applications of Electrochemistry" (Volume I on Principles is by H. Jermain Creighton). A thoroughly revised edition, with up-to-date material added on many subjects, including new data on certain types of storage battery, on chlorine-caustic cells, on magnesium from sea water, on new types of furnace, on electroplating, and other important matters. Ready in January.

Second Edition: Approx. 586 pages; 262 illus.; 5½ by 8½; Probable price, \$5.00

GEOMETRY WITH MILITARY AND NAVAL APPLICATIONS

By WILLIS F. KERN, *Associate Professor of Mathematics*, and JAMES R. BLAND, *Assistant Professor of Mathematics*; both at the *United States Naval Academy*.

Covers the fundamental, practical essentials of solid geometry and applies the principles and formulas to many problems dealing with military and naval situations. Simple proofs of the volume and surface formulas are included. The conventional treatment is simplified by basing the proof of each volume formula on Cavalieri's theorem. Published in November.

152 pages; 5½ by 8½; \$1.75

JOHN WILEY & SONS, Inc.

440 Fourth Avenue

New York 16, N. Y.

A New Book of Timely Importance

MILITARY MAP INTERPRETATION

By A. K. LOBECK

Professor of Geology, Columbia University

and Captain WENTWORTH J. TELLINGTON, U. S. Army

In press—ready soon

IN this forthcoming book the authors meet the urgent need for an authoritative text that provides in a single volume a complete yet simple presentation of the fundamental methods and modern applications in map reading. Basic principles and present-day techniques are described clearly and interestingly, with stress upon the habits and mental attitudes needed in fine map reading, such as the value of a good memory, powers of observation, and judgment of distance, time, and direction. The student is shown how to visualize and understand the landscape depicted by the map, and is instructed in the common use of air photographs.

The Schunemunk Quadrangle has been selected as a representative map to serve as the basis for all the technical instruction. As a foreign parallel, the Mannheim Map has been included to introduce the student to the field of international maps. A feature of the text is the large number of problems, discussion topics, and review exercises, culminating in a set of composite problems involving all aspects of the course.

-
- Part I. Basic Map Reading
II. Topographic Forms
III. Elementary Problems and Methods
IV. Advanced Map Reading
V. Landscape Types
VI. Air Photographs
VII. Comprehensive Problems. Problems on the Mannheim Map
-

Send for a copy on approval

McGRAW-HILL BOOK COMPANY, INC.

330 West 42nd Street, New York 18, N. Y.

Aldwych House, London, W.C.2.