

SCIENCE

VOL. LXIX

MARCH 8, 1929

No. 1784

CONTENTS

<i>Meteorology's Frozen Assets</i> : DR. W. J. HUMPHREYS	255
<i>High Frequency Radiation of the X-ray Type</i> : SIR ERNEST RUTHERFORD	259
<i>Scientific Events</i> :	
<i>The National Research Council of Italy; A Belgian Royal Colonial Institute; Plant Exploration in Madagascar; A Proposed National Monument in the Bad Lands of South Dakota; The World's Engineering Congress; President Hoover on Education and Public Health</i>	263
<i>Scientific Notes and News</i>	266
<i>University and Educational Notes</i>	269
<i>Discussion</i> :	
<i>Biological Publication in America</i> : PROFESSOR MAYNARD M. METCALF. <i>Evolution</i> : DR. AUSTIN H. CLARK. <i>Amia from the Cretaceous</i> : DR. DAVID STARR JORDAN. <i>Misuse of Scientific References in Commercial Advertising</i> : M. BODANSKY. <i>Importation of Cinematographic Films</i> : PROFESSOR WARREN H. LEWIS. <i>Reply to Professor Willcox</i> : PROFESSOR EDWARD V. HUNTINGTON	269
<i>Special Correspondence</i> :	
<i>Geological Work in Tonga and Fiji</i> : DR. H. S. LADD and DR. J. E. HOFFMEISTER	272
<i>Scientific Books</i> :	
<i>Yard's Our Federal Lands</i> : PROFESSOR HENRY B. WARD. <i>Braun-Blanquet's Pflanzensoziologie; Grundzüge der Vegetationskunde</i> : PROFESSOR JOHN W. HARSHBERGER	273
<i>Reports</i> :	
<i>Vitamin B Terminology</i> : PROFESSOR R. ADAMS DUTCHER	276
<i>Scientific Apparatus and Laboratory Methods</i> :	
<i>An Improved Method for Sealing Microscopic Mounts</i> : WILLIAM W. DIEHL	276
<i>Special Articles</i> :	
<i>Crystalline Turanose</i> : DR. C. S. HUDSON and DR. EUGEN PACSU. <i>The pH of the White as an Important Factor Influencing the Keeping Quality of Hens' Eggs</i> : PROFESSOR PAUL F. SHARP	278
<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

New York City: Grand Central Terminal.

Lancaster, Pa.

Garrison, N. Y.

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.

METEOROLOGY'S FROZEN ASSETS¹

IN the business and financial world frozen, or unavailable and unsalable, assets are almost as bad as no assets at all. A bank, for instance, may be forced to buy in a large amount of real estate at a foreclosure to avoid losing wholly loans that appeared entirely conservative when made. But by so doing its liquid or cash assets, without which it can not do business, are to that extent rendered unavailable; and its troubles might become serious if too many depositors asked for cash—for cash is what they want and not a vacant lot, perhaps, or other piece of stagnant property. Similarly, the farmer may have tobacco, cotton or grain in a warehouse but be quite unable promptly to sell it. His capital is frozen, and if, as often happens, he borrowed on it, his creditor has a frozen debt and may, therefore, be unable to meet on time obligations that he in turn had assumed; nor indeed does trouble usually end with the third or even fourth removal from the first cause. In short, frozen assets are of no value except when, and to the extent that, they are readily convertible into liquid assets; rather are they liabilities, for they all cost something to keep—taxes at least.

Unfortunately, knowing the pinch of poverty in the midst of plenty—of possessing frozen capital that does no one any good—is not confined to the business world. Science, too, and every branch of it, is far less productive of the good it could do because so many of its valuable assets are rigidly frozen—so many investigations that deal directly with each particular science, and especially so many more that deal with it indirectly, are lost for years, if not forever, in the jungle of journals and tangle of tongues. In this sense meteorology, to be specific and to come at once to the subject under consideration, is actually one of the poorest of all sciences. Its assets, indeed, are amazingly great and rapidly accumulating, but they are frozen to such a depth and breadth that only a Hercules could make them liquid—available for power and light, and able, besides, to change the forlorn desert of our ignorance to an inspiring field of knowledge.

Of course, it occurs to every one that the thousands of observations of temperature, pressure, humidity, wind velocity, and other weather elements, made every

¹ Address of the president of the American Meteorological Society, New York City, December 27, 1928.

Dr. Wiggam Says:

"Johnson O'Connor has given us in "Born That Way," the best book on heredity since Wood's "Heredity in Royalty," and Thorndike's "Studies of Twins." Moreover, it is of vastly greater service to our daily life and industrial problems than any former studies of heredity. In common parlance, he has "the goods." Not all psychologists will agree with his view of "general intelligence," but it is

A New Book on the Mind

and that is saying a great deal. It is written in a delightful and fascinating style of high literary quality. I hope it will have a great sale."

BORN THAT WAY

is a carefully wrought study of mental and similar tests which have stood the test of practical application; and is of paramount interest in vocational and educational guidance, in psychology, in genetics, in personnel administration. An extension of the Kent-Rosanoff table is included.

Cloth, 5¼ x 8, 323 pages. Index

Price \$6.00

The Williams & Wilkins Company

Baltimore, U. S. A.

Publishers of Scientific Books and Periodicals

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE

The School of Medicine is an Integral Part of the University and is in the Closest Affiliation with the Johns Hopkins Hospital.

ADMISSION

Candidates for admission must be graduates of approved colleges or scientific schools with two years' instruction, including laboratory work, in chemistry, and one year each in physics and biology, together with evidence of a reading knowledge of French and German.

Each class is limited to a maximum of 75 students, men and women being admitted on the same terms. Applications may be sent any time during the academic year but not later than June 15th.

If vacancies occur, students from other institutions desiring advanced standing may be admitted to the second or third year provided they fulfill the requirements and present exceptional qualifications.

INSTRUCTION

The academic year begins the Tuesday nearest October 1, and closes the second Tuesday in June. The course of instruction occupies four years and especial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the dispensary.

TUITION

The charge for tuition for 1929-30 will be \$600 per annum, payable in two installments. There are no extra fees except for certain expensive supplies, and laboratory breakage.

Inquiries should be addressed to the Executive Secretary of the School of Medicine, Johns Hopkins University, Washington and Monument Sts., Baltimore, Md.

Graduates in Medicine who satisfy the requirements of the heads of the departments in which they desire to work are accepted as students for a period not less than three quarters. Tuition charge is \$50 a quarter.

MOUNT DESERT ISLAND BIOLOGICAL LABORATORY

Summer Course. Problems in Field Natural History.
July 1st-August 23rd, 1929.

Work of advanced college undergraduate or of graduate grade may be undertaken with insects, arachnids, fishes, amphibians, birds or mammals.

The enrollment will be confined to a limited number of students each of whose applications will be considered individually.

Course work will be in charge of Dr. C. C. Little, University of Michigan, Ann Arbor, Michigan, to whom requests for further information should be made.

Allegheny School of Natural History

In Allegheny State Park, Quaker Bridge, N. Y.

Third Season—July 5 to August 24, 1929.

Registration limited to fifty (50)

Field studies in Botany, Zoology, Geology

Natural conditions favorable in richness and variety, suitable laboratories and equipment, comfortable living in a stimulating climate, guidance from experienced teachers and investigators.

Sponsored by the Buffalo Society of Natural Sciences, the New York State Museum, and the University of Buffalo (with college credit).

For circulars or registration, address until June 15:

DR. ROBERT E. COKER, Director

Box 950

Chapel Hill, N. C.

NATIONAL RESEARCH COUNCIL

National Research Fellowships in the Biological Sciences

The Board of National Research Fellowships in the Biological Sciences will make further awards of post-doctorate fellowships in the biological sciences for the academic year 1929-30 at a meeting to be held April 25th and 26th. Applications should be filed by April first in order to insure consideration. Appointments may be made prior to the conferring of the doctor's degree, to be effective upon the receipt of the degree within six months. Attention is especially called to the recent addition of the subjects of agriculture and forestry, in their fundamental aspects, to the scope of the Board's awards, which formerly included zoology, botany, anthropology and psychology. Forms of application and statement of conditions will be furnished on application by letter or by wire to

The Secretary, Board of National Research Fellowships in the Biological Sciences, National Research Council, Washington, D. C.

Marine Biological Laboratory Woods Hole, Mass.

SUPPLY DEPARTMENT

Biological Supplies

Open the Entire
Year

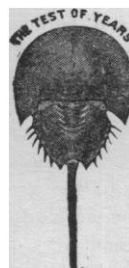
For the classroom, museum or collector. Look for the sign of the *Limulus*. As the *Limulus* represents the test of time, we feel from the business growth that our supplies have also stood the test of years.

Send for Catalogue

No. I. Zoological and Embryological material. Life Histories and Habitat Groups.
No. II. Botanical material.
No. III. Microscopic Slides.

Address all correspondence regarding material and catalogue to:
Supply Department

GEO. M. GRAY, Curator,
Woods Hole, Mass.



STRUCTURE OF TYPICAL AMERICAN OIL FIELDS Volume I

Symposium on the Relation of Oil Accumulation to Structure. 39 authors describe 60 oil fields in 13 states. A new and authoritative book published by the largest organized body of geologists in the world.

510 pp., 194 illus. 6 x 9 inches. Cloth.

PRICE, \$5.00, POSTPAID

American Association of Petroleum Geologists

Box 1852, Tulsa, Oklahoma, U. S. A.

INDUSTRIAL RESEARCH POSITIONS

in

Department of Physics, University of Michigan

Full time industrial research positions are open for men who would desire to work on the following problems: (1) development of new methods of measuring temperatures of molten metal; (2) measurement and reduction of noises in machinery, involving the design and use of vacuum tube amplifiers and associated apparatus. Preference will be given to men who have attained the Doctorate and have had additional research experience. Budgets are ample, facilities good, hours flexible. One month's vacation with pay. If interested, state experience, salary expected, when available, and send photograph.

Director of Physics Department

University of Michigan

Ann Arbor, Michigan

A GUIDE TO THE WINTER BIRDS OF THE NORTH CAROLINA SANDHILLS

By Milton P. Skinner and John Warren Achorn

301 pp. 13 color plates by Edmund J. Sawyer. 30
illustrations. \$4.00.

The distribution of this book has been placed into the
hands of

THE SCIENCE PRESS DISTRIBUTING COMPANY
GRAND CENTRAL TERMINAL, NEW YORK, N. Y.

LIVING BULLFROGS

Safe delivery guaranteed

Teach Biology with live specimens where practicable

We have the only complete live materials establishment in America. Live plants and animals representing all types are kept on hand under semi-natural conditions at all seasons.

Also headquarters for preserved specimens of all types, microscopic slides, life histories, demonstrations, osteological preparations, insect collections. We specialize in many important southern species not obtainable elsewhere.

All material guaranteed without reservations.

SOUTHERN BIOLOGICAL SUPPLY CO., INC.,
Natural History Building, New Orleans, La.

THE MICROSCOPE

By SIMON H. GAGE, of Cornell University
Revised, Dark-field Edition (1927) now Available.

The Old and the New in Microscopy, with a special chapter
on Dark-Field Methods and their Application.


Postpaid, \$3.50

COMSTOCK PUBLISHING CO., ITHACA, N. Y.

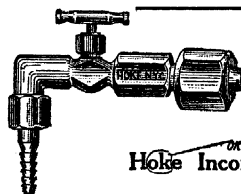


Write
for
literature

CORNING GLASS WORKS, Dept. 75
Industrial and Laboratory Div., Corning, N. Y.



Hy-Speed Mixers
Clamp to any tank, operate from
light circuit, mix all kinds of liquids.
Also used for even temperature
baths. Thousands in use.
All Sizes
from
1/10 H. P.
\$37.50 up
Write for circular.
ALSOP ENGINEERING CO.
47 W. 63rd St., New York



Use ^{OK}Hoke devices
with compressed gases.
Ask for folder S-2.

Hoke Incorporated

22 Albany St.,
New York City.

AMERICAN MEN OF SCIENCE

A Biographical Directory

Edited by J. McKeen Cattell and Jaques Cattell

New impression ready early in April

The fourth edition of the Biographical Directory of American Men of Science contains about 13,000 sketches and extends to 1,132 pages. It is an invaluable work of reference for scientific men. It is useful for libraries, newspapers, educational executives and all who have relations with those engaged in scientific research.

Price, Ten dollars net, postage paid

THE SCIENCE PRESS

Grand Central Terminal,

New York, N. Y.