

SCIENCE

VOL. 75

FRIDAY, FEBRUARY 26, 1932

No. 1939

<i>How the Other Half Live</i> : PROFESSOR ROBERT HEGNER	225	<i>Study of Chick Embryo</i> : DR. ALEXIS L. ROMAN-OFF	245
<i>Our Debt to Faraday's Epoch</i> : PROFESSOR DUGALD C. JACKSON	230	<i>Special Articles</i> :	
<i>Obituary</i> :		<i>On the Laws of Kinetic Systems</i> : DR. W. H. LONGLEY. <i>Rate of Sea Cliff Recession on the Property of the Scripps Institution of Oceanography at La Jolla, California</i> : DR. T. WAYLAND VAUGHAN	248
<i>Scientific Events</i> :		<i>Science News</i>	8
<i>The American Chemical Society; National Research Fellowships in the Biological Sciences; Honorary Degrees Conferred at the Bicentennial of the George Washington University; Awards of the American Institute of Mining and Metallurgical Engineers; The Hayden Memorial Geological Award for 1932</i>	234		
<i>Scientific Notes and News</i>	237		
<i>Discussion</i> :			
<i>The Process of Giordano Bruno</i> : PROFESSOR K. F. HERZFELD. <i>A Small Insect which Stings Severely</i> : PROFESSOR E. O. ESSIG. <i>Hamivorous Fish</i> : PROFESSOR W. A. HAMOR. <i>Relations between Fundamental Physical Constants</i> : DR. J. E. MILLS	241		
<i>Societies and Academies</i> :			
<i>The Northwest Scientific Association</i> : J. W. HUNGATE. <i>Fourth Round Table of Catholic Scientists held in New Orleans</i> : DR. A. M. KEEFE	244		
<i>Scientific Apparatus and Laboratory Methods</i> :			
<i>A Rotary Myograph</i> : DR. SEWARD E. OWEN. <i>Multiple Laboratory Incubator for the Biological</i>			

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.

HOW THE OTHER HALF LIVE¹

By Professor ROBERT HEGNER

THE JOHNS HOPKINS UNIVERSITY

THE title of my address this evening was called for by our secretary eight months ago; this made it necessary for me to select a title broad enough to cover anything I might wish to say. I was quite certain at the time that I would talk about parasites. I might equally well have chosen the title "How the Neglected Half Live" instead of "How the Other Half Live," since very few zoologists seem to realize what a large part of the animal kingdom consists of parasites. Those of us who have selected parasitology as a field of research know that every species of animal that has been studied carefully harbors within it one or more species of parasites. Man, for example, is known to be parasitized by about 25 different species of protozoa, 85 different species of worms and an un-

certain number of different species of arthropods, the exact number depending on one's definition of a parasite. Many of these parasites appear to exist only in man. A similar condition prevails among domesticated animals and common wild animals and probably is universal. Hence it would appear that there are at least as many species of animal parasites as there are species of animal hosts for them to live in.

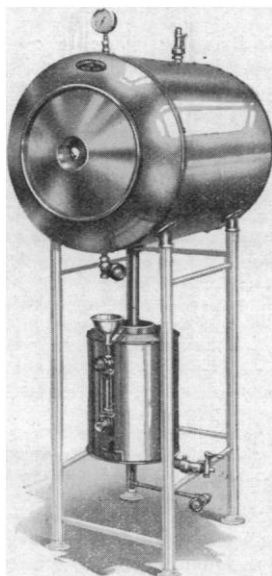
The number of individuals belonging to various species of parasites is astounding. The number of ciliates in the stomach of a cow, or cecum of a horse, the number of flagellates in the cecum of a guinea-pig, the number of malaria parasites in the blood of a human being suffering from malaria, and the number of amoebae in a dysenteric patient mounts into the billions.

Parasites have attracted more attention in recent

¹ Address of the vice president and chairman of Section F, American Association for the Advancement of Science, presented at the Zoologists' dinner in New Orleans on December 30, 1931.

THE First Auto-clave with the Eclipse Door. Originated in 1900 and developed to keep pace with the advances of laboratory technique.

Authorized dealers everywhere



BRAMHALL, DEANE CO.
Established 1859
51 East 21st Street NEW YORK

We wish to consult man with laboratory (college or industry) experience in preparing Vitamin Concentrate of Cod Liver Oil.

Address M. J., care of Science, 3941 Grand Central Terminal, New York, N. Y.

Well established London firm desires to hear of *NEW* developments in *Scientific, Optical and Electrical laboratory and works equipment*, with a view to creating a vigorous demand in Great Britain.

Write to W. Edwards & Company, Allendale Road, Denmark Hill, London S. E. 5, England.

NEW (15th) EDITION OF
THE MICROSCOPE
By SIMON HENRY GAGE

Revised throughout, and a wholly new chapter on the Ultra-Violet Microscope. Price \$4.00.

THE COMSTOCK PUBLISHING CO., Ithaca, N. Y.

Second Edition: Revised and Enlarged
THE RAT: DATA AND REFERENCE TABLES
Memoir No. 6: 458 pages. Bibliography: 2206 titles
HENRY H. DONALDSON
Published by THE WISTAR INSTITUTE
Philadelphia, Pa., U. S. A. Price, \$5.00

BOSTON UNIVERSITY SCHOOL OF MEDICINE

ORGANIZED IN 1873

ANNOUNCEMENT

may be obtained by application to

THE REGISTRAR

80 East Concord Street

Boston

Massachusetts

BIOLOGICAL and NATURAL HISTORY MATERIAL



Zoological Groups
Embryological Slides
Botanical Life Histories
Drosophila Cultures

Catalogs on request: Address

MARINE BIOLOGICAL LABORATORY

Supply Department

Woods Hole, Mass., U. S. A.

THE SCIENCE PRESS PRINTING COMPANY

PRINTERS OF
SCIENTIFIC AND EDUCATIONAL
JOURNALS, MONOGRAPHS AND BOOKS

Correspondence Invited

LANCASTER, PENNSYLVANIA