

SCIENCE

VOL. 98

FRIDAY, NOVEMBER 12, 1943

No. 2550

Recent Advances in Viruses: DR. EDWIN H. LENNETTE 415

Obituary:

Felix Aguilar: DR. OTTO STRUVE. *Deaths and Memorials* 423

Scientific Events:

Gifts to the Royal College of Surgeons, England; Report of the Committee on the Professional Training of Chemists; The Dysentery Registry; Rare Chemicals; Program of the Lancaster Branch of the American Association; The Pacific Division of the American Association; The American Philosophical Society; The Charles L. Mayer Award of the National Academy of Sciences 424

Scientific Notes and News 427

Discussion:

A Possible Relationship between the Walnut Erinose Mite and Walnut Blight: DR. B. A. RUDOLPH. *Another Discovery of Chaos Chaos:* PAUL F. BRANDWEIN, PATRICIA PENN and CLARE SHIEL. *Tennyson's Prediction of the Invention, Use and Misuse of the Aeroplane:* PROFESSOR M. F. ASHLEY MONTAGU 430

Scientific Books:

Heat Engines: DR. HOWARD W. EMMONS 432

Special Articles:

The In-Vitro Destruction of Carotene by Water Extracts of Minced Rat Stomachs in the Presence of Methyl Linolate: DR. E. L. HOVE. *An Unidentified Nutrient Required for Proper Utilization of Dl-Alpha-Tocopherol by the Chick:* DR. HOMER PATRICK and PROFESSOR C. L. MORGAN 433

Scientific Apparatus and Laboratory Methods:

A Method for Indicating the Moisture Content of Foods during Dehydration: DR. GEORGE BOUYOUOS and PROFESSOR H. A. CARDINELL 435

Science News 10

SCIENCE: A Weekly Journal devoted to the Advancement 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 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 25, D. C.

RECENT ADVANCES IN VIRUSES¹

A BRIEF SURVEY OF RECENT WORK ON VIRUSES AND VIRUS DISEASES²

By Dr. EDWIN H. LENNETTE

SERVIÇO DE ESTUDOS E PESQUISAS SÔBRE A FEBRE AMARELA (YELLOW FEVER RESEARCH SERVICE)³

To formulate at the present time a concise, accurate and invariant definition of a virus is impossible due to the insufficiency of our knowledge concerning the nature of these disease incitants. Because the infectious agents classified as viruses possess the capacity to multiply or reproduce, because they showed marked specificity under natural conditions for certain hosts and tissues, are able to adapt themselves to new environmental conditions and to undergo variation, it is customary to regard them as living organisms. In the past viruses were characterized, and thus differentiated from bacteria, by the possession of a size at or below the limits of resolution possible with the usual

microscopic methods, by their ability to pass through mineral or collodion filters which hold back bacteria, and by their total inability to reproduce in lifeless bacteriologic media. We now know, however, that invisibility and filtrability do not constitute valid criteria—some infectious agents possessing all the attributes of a virus and classed as such are visible and approximate the smallest bacteria in size while others pass with difficulty, or not at all, through filters which permit passage of the smallest bacteria. From the biologic standpoint the outstanding difference between viruses and bacteria appears to lie in the inability of viruses to propagate unless living cells are present; yet on closer analysis even this difference approximates the relative rather than the absolute in degree. Certain pathogenic bacteria, such as *Hemophilus influenzae* and *Pasteurella tularensis*, have become so highly parasitic that their nutritional requirements are

¹ Received for publication October 25, 1943.

² Presented on July 6, 1943, before the Seminario de Biologia, held in Rio de Janeiro from July 2 to 6, 1943, under the auspices of the University of Brazil.

³ Maintained jointly by the Ministry of Education and Health of Brazil and the International Health Division of The Rockefeller Foundation.

Science

98 (2550)

Science **98** (2550), 415-436.

ARTICLE TOOLS

<http://science.sciencemag.org/content/98/2550.citation>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.