

THE JOURNAL OF HYGIENE

EDITED BY

GEORGE H. F. NUTTALL, M.D., PH.D., SC.D., F.R.S.

QUICK PROFESSOR OF BIOLOGY IN THE UNIVERSITY OF CAMBRIDGE

IN CONJUNCTION WITH

JOHN S. HALDANE, M.D., LL.D., F.R.S.,
Late Reader in Physiology in the University of Oxford.

ARTHUR NEWSHOLME, C.B., M.D.,
Medical Officer to the Local Government Board.

CHARLES J. MARTIN, M.B., D.Sc., F.R.S.,
Director of the Lister Institute, London.

J. C. G. LEDINGHAM, M.B., D.Sc.,
Bacteriologist-in-Chief, Lister Institute, London.

G. S. GRAHAM-SMITH, M.D.,
University Lecturer in Hygiene, Cambridge.

M. GREENWOOD, JUNR., M.R.C.S.,
Statistician, Lister Institute, London.

PUBLISHED QUARTERLY



CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

LONDON: FETTER LANE, E.C.

EDINBURGH: 100, PRINCES STREET

ALSO

H. K. LEWIS AND CO. LTD., 136, GOWER STREET, LONDON, W.C.

WILLIAM WESLEY AND SON, 28, ESSEX STREET, STRAND, LONDON, W.C.

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS

BOMBAY, CALCUTTA AND MADRAS: MACMILLAN & CO., LTD.

TORONTO: J. M. DENT AND SONS, LTD.

TOKYO: THE MARUZEN-KABUSHIKI-KAISHA

Price Seven Shillings net

THE UNIVERSITY OF CHICAGO PRESS

THE UNIVERSITY OF CHICAGO SCIENCE SERIES

THE ORIGIN OF THE EARTH. By THOMAS CHROWDER
CHAMBERLIN, Head of the Department of Geology in the University of
Chicago.

This book, by one of the leading geologists of the world, sets forth the disclosures that led to the rejection, one after another, of the older views of the origin of our planet, the futile attempts then made to emend these or to build others upon the same foundations, the final rejection of all these, and the construction of a radically new view based on a new dynamic foundation. The later chapters of the book treat of the early stages of the earth and of the way in which its leading processes took their start from their cosmogonic antecedents, these being held to be essential factors in the genesis of the planet. The beginning of the inquiry is set forth in the Introduction; the successive chapters are entitled: "The Gaseous Theory of Earth-Genesis in the Light of the Kinetic Theory of Gases"; "Vestiges of Cosmogonic States and Their Significance"; "The Decisive Testimony of Certain Vestiges of the Solar System"; "Futile Efforts"; "The Forbidden Field"; "Dynamic Encounter by Close Approach"; "The Evolution of the Solar Nebula into the Planetary System"; "The Juvenile Shaping of the Earth"; "Inner Reorganization of the Juvenile Earth"; "Higher Organization in the Great Contact Horizons."

xii + 272 pages, 12mo, cloth; 6s net.

Volumes already Published

THE EVOLUTION OF SEX IN PLANTS. By JOHN M. COULTER, Head of
the Department of Botany in the University of Chicago. x + 140 pages,
12mo, cloth; 4s net.

INDIVIDUALITY IN ORGANISMS. By CHARLES MANNING CHILD, Associate
Professor of Zoölogy in the University of Chicago. x + 212 pages, 12mo,
cloth; 5s net.

Volumes in Preparation

FINITE COLLINEATION GROUPS. By HANS F. BLICHFELDT.

THE ISOLATION AND MEASUREMENT OF THE ELECTRON. By
ROBERT ANDREWS MILLIKAN.

A FACTORIAL THEORY OF EVOLUTION. By WILLIAM LAWRENCE
TOWER.

CHEMICAL SIGNS OF LIFE. By SHIRO TASHIRO.

THE EVOLUTION OF REPTILES. By SAMUEL WENDELL WILLISTON.

FOOD POISONING. By EDWIN OAKES JORDAN.

THE LIVING CYCADS. By CHARLES JOSEPH CHAMBERLAIN.

MECHANICS OF DELAYED GERMINATION IN SEEDS. By WILLIAM
CROCKER.

THE RIGIDITY OF THE EARTH AND OF MATERIALS. By A. A.
MICHELSON.

THE PROBLEM OF FERTILIZATION. By FRANK R. LILLIE.

LINEAR INTEGRAL EQUATIONS IN GENERAL ANALYSIS. By
ELIAKIM HASTINGS MOORE.

THE CAMBRIDGE UNIVERSITY PRESS

Agents for the British Empire

London, Fetter Lane

THE JOURNAL OF HYGIENE

CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

London: FETTER LANE, E.C.

Edinburgh: 100, PRINCES STREET



London: H. K. LEWIS AND CO., LTD., 136, GOWER STREET, W.C.
WILLIAM WESLEY AND SON, 28, ESSEX STREET, STRAND, W.C.

Chicago: THE UNIVERSITY OF CHICAGO PRESS

Bombay, Calcutta and Madras: MACMILLAN AND CO., LTD.

Toronto: J. M. DENT AND SONS, LTD.

Tokyo: THE MARUZEN-KABUSHIKI-KAISHA

All rights reserved

THE JOURNAL OF HYGIENE

EDITED BY

GEORGE H. F. NUTTALL, M.D., PH.D., Sc.D., F.R.S.

QUICK PROFESSOR OF BIOLOGY IN THE UNIVERSITY OF CAMBRIDGE

IN CONJUNCTION WITH

JOHN S. HALDANE, M.D., LL.D., F.R.S.,
Late Reader in Physiology in the University of Oxford.

ARTHUR NEWSHOLME, C.B., M.D.,
Medical Officer to the Local Government Board.

CHARLES J. MARTIN, M.B., D.Sc., F.R.S.,
Director of the Lister Institute, London.

J. C. G. LEDINGHAM, M.B., D.Sc.,
Bacteriologist-in-Chief, Lister Institute, London.

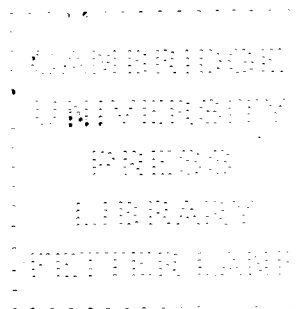
G. S. GRAHAM-SMITH, M.D.,
University Lecturer in Hygiene, Cambridge.

M. GREENWOOD, JUNR., M.R.C.S.,
Statistician, Lister Institute, London.

Volume XV. 1915—17

Cambridge
at the University Press

1917



CONTENTS

No. 1 (JULY, 1915).

	PAGE
HEWLETT, R. T. and REVIS, C. On a Complement-stimulating Substance in Cow's Milk	1
BROWNLEE, J. Studies in the Meaning and Relationships of Birth and Death Rates	
II. Density of Population and Death Rate (Farr's Law)	11
III. The Constitution of a Death Rate. (With one Chart)	17
IV. On the Range of Instances in which Geometrical Progressions describe numerically processes of life, i.e. those processes which might be explained by a monomolecular reaction	25
V. On the difficulty that in applying the laws of physical chemistry to life processes, indices occur which suggest the actions of fractions of a molecule	33
RADCLIFFE, J. A. D. Complement Fixation in Pulmonary Tuberculosis	36
MACKINTOSH, J., PENNINGTON, S. and WILLIAMS, R. S. The Supply of Non-tuberculous Dairy Stock	51
HAFFKINE, W. M. Concerning Inoculation against Plague and Pneumonia and the Experimental Study of Curative Methods	64
FLETCHER, W. The Wassermann and Luetin Reactions in Leprosy	102
EWART, R. J. The Influence of Age of the Grandparent at the Birth of the Parent on the Number of Children born and their Sex. (With one Text-figure)	127
TAYLOR, F. E. The Sterilisation of Vaccines; and the Influence of the Various Methods Employed on their Antigenic Properties. (With one Chart)	163

NO. 2 (JANUARY, 1916).

	PAGE
JONA, J. L. A Contribution to the Experimental Study of Fever. (With nine Charts and one Text-figure)	169
GRIFFITH, F. On the Pathology of Bovine Actinomycosis	195
EWART, R. J. The Influence of the Age of the Parent at the Birth of Offspring on the Age at which they are attacked by some of the Zymotic Diseases, with special reference to the Epidemiology of Scarlet Fever. (With two Charts)	208
EASTWOOD, A. and GRIFFITH, F. The Characteristics of Tubercle Bacilli in Human Bone and Joint Tuberculosis	257
EASTWOOD, A and GRIFFITH, F. The types of Tubercle Bacilli occurring in Tuberculosis of the Human Genito-urinary Tract	310

NO. 3 (SEPTEMBER, 1916).

GREEN, A. B. The Australian Epidemic, 1914	315
SAVAGE, WILLIAM G. and READ, W. J. The Significance of Strepto- cocci in Water Supplies	334
TSURUMI, M. A Contribution to the Study of Amboceptors and Receptors. Second Communication on Heterologous Immunity to Malignant Mouse Tumours	352
Third Communication on Heterologous Immunity to Malignant Mouse Tumours	365
DUKE, H. LYNDBURST. Trypanosomiasis in Northern Uganda. (With Map)	372
HOMER, ANNIE. An Improved Method for the Concentration of Anti- toxic Sera	388
HOMER, ANNIE. A Suggestion as to the Cause of the Lessened Produc- tion of Indol in Media Containing Glucose	401
EASTWOOD, A. Bacteriological Aspects of the Meningococcus Carrier Problem	405

Contents

vii

	PAGE
GRIFFITH, FRED. Identification of the Meningococcus in the Nasopharynx with Special Reference to Serological Reactions	446
SCOTT, W. M. A Study of Meningococci occurring in the Spinal Fluid and of Similar Organisms in the Naso-pharynx	464

NO. 4 (FEBRUARY, 1917).

PRIESTLEY, H. The Mechanism of the Agglutination Reaction	485
NICOLL, W. Flies and Typhoid	505
PHILIP, W. M. and HIRST, L. F. A Report on the Outbreak of the Plague in Colombo. 1914—1916. (With five Maps and one Chart)	527
PIRIE, J. H. HARVEY. Observations on East African Bacillary Dysentery	565
HOMER, A. On Factors Limiting the Extent of the Concentration of Antitoxic Sera by the Fractional Precipitation Methods at present employed	580
INDEX OF AUTHORS	591
INDEX OF SUBJECTS	593