

THE
JOURNAL OF HYGIENE

EDITED BY

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

QUICK PROFESSOR OF BIOLOGY, DIRECTOR OF THE MOLTENO INSTITUTE FOR
RESEARCH IN PARASITOLOGY 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.

CHARLES J. MARTIN, C.M.G., M.B., D.Sc., F.R.S.,

Professor of Experimental Pathology in the University of London

Director of the Lister Institute, London.

J. C. G. LEDINGHAM, C.M.G., M.B., D.Sc., F.R.S.,

Professor of Bacteriology in the University of London,

Bacteriologist-in-Chief, Lister Institute, London.

G. S. GRAHAM-SMITH, M.D., F.R.S.,

Reader in Preventive Medicine, Cambridge.

MAJOR GREENWOOD, M.R.C.P., Lond.,

Medical Officer (Medical Statistics), Ministry of Health.

PUBLISHED QUARTERLY



CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

LONDON: FETTER LANE, E.C. 4

ALSO

H. K. LEWIS AND CO. LTD., 136, GOWER STREET, LONDON, W.C. 1

WHELDON AND WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD STREET, LONDON, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS
(AGENT FOR THE UNITED STATES AND CANADA)

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

TOKYO: THE MARUZEN-KABUSHIKI-KAISHA

Price Twelve Shillings and Sixpence net

The University of Chicago Press

THE UNIVERSITY OF CHICAGO SCIENCE SERIES

EDITORIAL COMMITTEE:—ELIAKIM HASTINGS MOORE, CHAIRMAN
JOHN MERLE COULTER : PRESTON KYES

The following volumes are bound uniformly in maroon cloth, small 12mo:

- THE EVOLUTION OF SEX IN PLANTS.** By JOHN MERLE COULTER. x + 140 pages; 6s. 3d. net.
- INDIVIDUALITY IN ORGANISMS.** By CHARLES MANNING CHILD. x + 212 pages; 7s. 6d. net.
- THE ORIGIN OF THE EARTH.** By THOMAS C. CHAMBERLIN. xii + 272 pages; 8s. 9d. net.
- FINITE COLLINEATION GROUPS.** By HANS F. Blichfeldt. xii + 194 pages; 7s. 6d. net.
- A CHEMICAL SIGN OF LIFE.** By SHIRO TASHIRO. x + 142 pages; 6s. 3d. net.
- THE BIOLOGY OF TWINS.** By HORATIO HACKETT NEWMAN. x + 186 pages; 7s. 6d. net.
- THE PHYSIOLOGY OF TWINNING.** By HORATIO HACKETT NEWMAN. x + 232 pages; 8s. 9d. net.
- FOOD POISONING.** By EDWIN OAKES JORDAN. viii + 116 pages; 6s. 3d. net.
- THE ELECTRON: ITS ISOLATION AND MEASUREMENT, AND THE DETERMINATION OF SOME OF ITS PROPERTIES.** By ROBERT ANDREWS MILLIKAN. xii + 268 pages; 8s. 9d. net.
- THE LIVING CYCADS.** By CHARLES JOSEPH CHAMBERLAIN. xiv + 172 pages; 7s. 6d. net.
- PROBLEMS OF FERTILIZATION.** By FRANK R. LILLIE. xii + 278 pages; 8s. 9d. net.
- THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM FROM A PHYSIOLOGICAL VIEWPOINT.** By CHARLES M. CHILD. xvii + 296 pages; 8s. 9d. net.
- THE ANTIQUITY OF DISEASE.** By ROY L. MOODIE. xiv + 148 pages; 7s. 6d. net.
- THE STORY OF THE MAIZE PLANT.** By PAUL WEATHERWAX. 300 pages; 8s. 9d. net.

Volumes for Later Publication

- MECHANICS OF DELAYED GERMINATION IN SEEDS.** By W. CROCKER.
- BLACK-BODY RADIATION.** By CHARLES E. MENDENHALL.
- THE RIGIDITY OF THE EARTH AND OF MATERIALS.** By A. A. MICHELSON.
- LINEAR INTEGRAL EQUATIONS IN GENERAL ANALYSIS.** By ELIAKIM HASTINGS MOORE.

Agents for the British Empire (except Canada)

Cambridge University Press, Fetter Lane, London, E.C. 4

THE JOURNAL OF HYGIENE

CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

LONDON: FETTER LANE, E.C. 4



H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1
WHELDON & WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD
STREET, LONDON, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS
(Agent for the United States and Canada)

BOMBAY, CALCUTTA, MADRAS: MACMILLAN & CO., 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, DIRECTOR OF THE MOLTEÑO INSTITUTE FOR
RESEARCH IN PARASITOLOGY 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

CHARLES J. MARTIN, C.M.G., M.B., D.Sc., F.R.S.

PROFESSOR OF EXPERIMENTAL PATHOLOGY IN THE UNIVERSITY OF LONDON,
DIRECTOR OF THE LISTER INSTITUTE, LONDON

J. C. G. LEDINGHAM, C.M.G., M.B., D.Sc., F.R.S.

PROFESSOR OF BACTERIOLOGY IN THE UNIVERSITY OF LONDON,
BACTERIOLOGIST-IN-CHIEF, LISTER INSTITUTE, LONDON

G. S. GRAHAM-SMITH, M.D., F.R.S.

READER IN PREVENTIVE MEDICINE, CAMBRIDGE

MAJOR GREENWOOD, M.R.C.P. (LOND.)

MEDICAL OFFICER (MEDICAL STATISTICS), MINISTRY OF HEALTH

VOLUME XXI. 1922–1923

CAMBRIDGE
AT THE UNIVERSITY PRESS

1923

PRINTED IN GREAT BRITAIN

CONTENTS

No. 1 (JUNE 1922)

	PAGE
McnABB, SIR DANIEL. Notes on Venereal Diseases in the Royal Navy	1
TOPLEY, W. W. C. The Spread of Bacterial Infection. Some Characteristics of the Pre-epidemic Phase. (With 5 Charts)	10
TOPLEY, W. W. C. The Spread of Bacterial Infection. The Effect of Dispersal during the Pre-epidemic Stage, and of subsequent Re-aggregation. (With 1 Chart)	20
MATTICK, A. T. R. and WILLIAMS, R. S. Evidence of the Necessity for a Bacteriological Standard for Grade "A" Milk	33
TODD, E. W. The Haemolytic Organisms of Normal Infants' Faeces	37
YOUNG, M. Some Observations on the Distribution of Cancer in the Severn Valley	49
TEH, W. L. Plague in the Orient with Special Reference to the Manchurian Outbreaks	62
SHEARER, C. Studies on the Action of Electrolytes on Bacteria. Part II. The Influence of the Trivalent Positive Salts on the Rate of Migration of Bacteria in an Electric Field, and their Effect on Growth and Virulence of Pathogenic Organisms. (With Plate I)	77
WALKER, E. W. A. Studies in Bacterial Variability. The Experimental Production of a Mucoïd form of <i>B. paratyphosus</i> B	87
CUMMINS, S. L. Notice regarding the newly established Diploma in Tuberculous Diseases	93
GLENNY, A. T. and ALLEN, K. The Action of Diphtheria Toxin on Mice	96
GLENNY, A. T. and ALLEN, K. Active Immunity to Diphtheria in the Absence of Detectable Antitoxin. (With 1 Chart)	100
GLENNY, A. T. and ALLEN, K. The Schick Dose of Diphtheria Toxin as a Secondary Stimulus	104
Industrial Hygiene	112

No. 2 (NOVEMBER 1922)

O'KELLY, W. D. Report on an Outbreak of Bacterial Food-poisoning. (With 1 Plan)	113
BROWNLEE, JOHN. Mortality in Childhood with reference to Hygiene. (With 2 Diagrams)	126
RAJU, V. GOVINDA. Certain Limitations of the <i>Bacillus coli</i> method in Water Examinations	130

	PAGE
MATTICK, A. T. R. and WILLIAMS, R. STENHOUSE. The Bacteriological Condition and Keeping Qualities of Grade "A" (Certified) Milk during the year 1921	134
SMITH, J. The Reductase Test of Barthel and Jensen	139
GLENNY, A. T. and HOPKINS, BARBARA E. Duration of Passive Immunity. (With 2 Charts)	142
BIGGER, JOSEPH W. The Bacteriological Control of Milk Production. (With 2 Charts)	149
HALL, I. WALKER. Behaviour of Diphtheria Bacilli in Acidified Media, especially with reference to Virulence Tests	155
DUDGEON, L. S., WORDLEY, E. and BAWTREE, F. On <i>Bacillus coli</i> Infections of the Urinary Tract especially in relation to Haemolytic Organisms	168

No. 3 (MAY 1923)

GLEN LISTON, W. and GORÉ, S. N. The Fumigation of Ships with Liston's Cyanide Fumigator. (With Plates II—V and 3 Plans)	199
FREDERICK, ROBERT C. The Chemical Changes which occur in Samples of Excretally Polluted Water under Certain Specified Conditions	220
TOPLEY, W. W. C. The Spread of Bacterial Infection. Some General Considerations. (With 2 Text-figures)	226
TOPLEY, W. W. C. and WILSON, G. S. The Spread of Bacterial Infection. Group-to-Group Infection. (With 6 Charts)	237
TOPLEY, W. W. C. and WILSON, G. S. The Spread of Bacterial Infection. The Problem of Herd-Immunity. (With 9 Charts)	243
GRANT, R. T. The Diphtherial Infection in Scarlet Fever	250
SAVAGE, WILLIAM G. and WHITE, P. BRUCE. Rats and Salmonella Group Bacilli	258
TEH, W. L. (G. L. TUCK). The Second Pneumonic Plague Epidemic in Manchuria, 1920–21. I. A General Survey of the Outbreak and Its Course. (With 1 Map)	262
TEH, W. L., CHUN, J. W. H. and POLLITZER, R. Clinical Observations upon the Manchurian Plague Epidemic, 1920–21	289
TEH, W. L. (G. L. TUCK), HAN, C. W. and POLLITZER, R. Plague in Manchuria. I. Observations made during and after the Second Manchurian Plague Epidemic of 1920–21. II. The Rôle of the Tarabagan in the Epidemiology of Plague. (With Plates VI, VII, VIII)	307

NO. 4 (AUGUST 1923)

	PAGE
TODA, T. Cholera and the ship "Cockroach"	359
KHALED, Z. Parenteric Fevers in Egypt. (With 3 Charts)	362
WYON, G. A. and MCLEOD, J. W. Preliminary Note on Inhibition of Bacterial Growth by Amino-acids. (With 2 Charts)	376
MACKIE, T. J. The Serum Constituents responsible for the Sachs-Georgi and Wassermann Reactions	386
WILSON, W. J. Reduction of Sulphites by certain Bacteria in Media containing a Fermentable Carbohydrate and Metallic Salts	392
GARDNER, A. D. The Agglutination of Standard Agglutinable Cultures of the Flexner-group of Dysentery Bacilli by Non-dysenteric Human Sera	399
PANDIT, C. G. An Experimental Study of the Neisser-Wechsberg Pheno- menon. (With 1 Text-figure)	406
GREENWOOD, M. and NEWBOLD, E. M. On the Estimation of Metabolism from Determinations of Carbon Dioxide Production and on the Estimation of External Work from the Respiratory Metabolism	440
KINLOCH, J. P. The Aberdeen Epidemic of Milk-borne Bacillary Dysentery, March to May, 1919	451
INDEX OF AUTHORS	458
INDEX OF SUBJECTS	460