

C13, 14

Vol. 78, No. 3

June 1977

# THE JOURNAL OF HYGIENE

*(Founded in 1901 by G. H. F. Nuttall, F.R.S.)*

EDITED BY

R. M. FRY, M.A., M.R.C.S. AND J. H. McCOY, M.B., D.P.H.

IN CONJUNCTION WITH

P. ARMITAGE, M.A., PH.D.

R. D. BARRY, M.A., B.V.Sc., PH.D., Sc.D.

W. I. B. BEVERIDGE, D.V.Sc., Sc.D.

A. B. CHRISTIE, M.A., M.D., F.R.C.P., F.F.C.M.

A. W. DOWNIE, M.D., F.R.S.

R. I. N. GREAVES, M.D., F.R.C.P.

O. M. LIDWELL, D.PHIL.

J. NAGINGTON, M.D.

HILLAS SMITH, M.A., M.D., F.R.C.P.

SIR GRAHAM WILSON, M.D., LL.D., F.R.C.P., D.P.H.



CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW1 2DB

32 East 57th Street, New York, N.Y. 10022

# The Journal of Hygiene

The *Journal of Hygiene* publishes reports of research and original findings in subjects related to hygiene, preventive and social medicine. The field covered is broad and includes infection, microbiology, virology, immunity, epidemiology, food hygiene, sanitary bacteriology, statistics and the clinical and social aspects of disease.

Infection is defined in the widest sense and is concerned with the control of infectious disease in the community and within institutions and includes medical microbiology, clinical immunology, epidemiology, and the laboratory and clinical aspects of antimicrobial chemotherapy.

Papers for publication should be sent to Dr R. M. Fry, Department of Pathology, Tennis Court Road, Cambridge CB2 1QP. Papers forwarded to the Editor for publication are understood to be offered to *The Journal of Hygiene* alone, unless the contrary is stated.

Contributors receive twenty-five copies of their paper free. Additional copies may be purchased; these should be ordered when the final proof is returned.

© Cambridge University Press 1977

## PERMISSIONS

For permission to reproduce material from *Journal of Hygiene*, please apply to the London or New York office of Cambridge University Press.

ISI Tear Service, 325 Chestnut Street, Philadelphia, Pennsylvania 19106, U.S.A., is authorized to supply single copies of separate articles for private use only.

## SUBSCRIPTIONS

*The Journal of Hygiene* is published six times a year in February, April, June, August, October and December.

Single parts £6.00 net (US \$14.00 in the U.S.A. and Canada) plus postage.

Three parts form a volume; two volumes are published per year. The subscription price (which includes postage) of volumes 78 and 79 (1977) is £14.00 net per volume (US \$35.00 in the U.S.A. and Canada).

Second class postage paid at New York, N.Y.

Quotations for back volumes may be obtained from the publisher.

Claims for missing issues should be made immediately upon receipt of the subsequent issue.

Orders should be sent to a bookseller or subscription agent or to the publishers, Cambridge University Press, at Bentley House, 200 Euston Road, London NW1 2DB, or in the U.S.A. and Canada at 32 East 57th Street, New York, N.Y. 10022.

**THE  
JOURNAL OF HYGIENE**

# THE JOURNAL OF HYGIENE

*(Founded in 1901 by G. H. F. Nuttall, F.R.S.)*

EDITED BY

**R. M. FRY, M.A., M.R.C.S.**

Lately Director of the Public Health Laboratory, Cambridge

**AND J. H. McCOY, M.B., D.P.H.**

Director of Public Health Laboratory, Hull

IN CONJUNCTION WITH

**P. ARMITAGE, M.A., PH.D.**

Professor of Medical Statistics in the University of London

**R. D. BARRY, M.A., B.V.Sc., PH.D., Sc.D.**

Huddersfield Lecturer in Special Pathology in the University of Cambridge

**W. I. B. BEVERIDGE, D.V.Sc., Sc.D.**

Lately Professor of Animal Pathology in the University of Cambridge

**A. B. CHRISTIE, M.A., M.D., F.R.C.P., F.F.C.M.**

Physician Superintendent, Fazakerley Hospital, Liverpool

**A. W. DOWNIE, M.D., F.R.S.**

Lately Professor of Bacteriology in the University of Liverpool

**R. I. N. GREAVES, M.D., F.R.C.P.**

Lately Professor of Pathology in the University of Cambridge

**O. M. LIDWELL, D.PHIL.**

External Scientific Staff, Medical Research Council

**J. NAGINGTON, M.D.**

Consultant Virologist, Public Health Laboratory Service

**HILLAS SMITH, M.A., M.D., F.R.C.P.**

Consultant Physician, Coppets Wood Hospital

**Sir GRAHAM WILSON, M.D., LL.D., F.R.C.P., D.P.H.**

Lately Director of the Public Health Laboratory Service

VOLUME 78 1977

CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE · LONDON · NEW YORK

**PUBLISHED BY  
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS**

**The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
Bentley House, 200 Euston Road, London NW1 2DB  
32 East 57th Street, New York, N.Y. 10022, U.S.A.**

© Cambridge University Press 1977

*Printed in Great Britain at the University Press, Cambridge*

## Contents

No. 1 (FEBRUARY 1977)

	PAGE
BIBEL, D. J. Ecological effects of a deodorant and a plain soap upon human skin bacteria . . . . .	1
DEMPSTER, J. F. Cold water, ultra-high pressure cleaning of abattoirs . . . . .	11
SMITH, R. M. and RAE, A. Thermal comfort of patients in hospital ward areas . . . . .	17
WILLIAMS, J. E., EISENBERG, G. H. G. JR and CAVANAUGH, D. C. Decline of maternal antibodies to plague in Norway rats . . . . .	27
SMITH, G. R., MORYSON, CAROLINE J. and WALMSLEY, J. G. The low prevalence of <i>Clostridium botulinum</i> in the lakes, marshes and waterways of the Carmargue . . . . .	33
SMITH, G. R. and MORYSON, CAROLINE J. A comparison of the distribution of <i>Clostridium botulinum</i> in soil and in lake mud . . . . .	39
SOJKA, W. J., WRAY, C., SHREEVE, JEAN and BENSON, A. J. Incidence of salmonella infection in animals in England and Wales, 1968-1974 . . . . .	43
BURRELL, C. J., TONKIN, R. W., PROUDFOOT, E., LEADBETTER, G., COWAN, P., LOCKERBIE, L., GORE, S., LUTZ, W. and MARMION, B. P. Prevalence of antibody to hepatitis B surface antigen among staff in an Edinburgh hospital . . . . .	57
GILBERT, R. J. and PARRY, JENNIFER M. Serotypes of <i>Bacillus cereus</i> from outbreaks of food poisoning and from routine foods . . . . .	69
GREAVES, J. H. and REHMAN, A. B. The susceptibility of <i>Tatera indica</i> , <i>Nesokia indica</i> and <i>Bandicota bengalensis</i> to three anticoagulant rodenticides . . . . .	75
DOLBY, JEAN M., HONOUR, PAULINE and VALMAN, H. B. Bacteriostasis of <i>Escherichia coli</i> by milk. I. Colonization of breast-fed infants by milk resistant organisms . . . . .	85
SHOOTER, R. A., BETTELHEIM, K. A., LENNOX-KING, S. M. J. and O'FARRELL, S. <i>Escherichia coli</i> serotypes in the faeces of healthy adults over a period of several months . . . . .	95
RWEYEMAMU, M. M., BOOTH, J. C. and PAY, T. W. F. Neutralization kinetics studies with type SAT 2 foot-and-mouth disease virus strains. 1. Factors that influence the rate and pattern of neutralization . . . . .	99
TEOH-CHAN, C. H., CHAU, P. Y., TSE, DORIS, SIN, W. K. IP, H. M. H. and LAN, R. Hospital <i>Salmonella johannesburg</i> infection and its possible role in the community spread of the infection in Hong Kong. . . . .	113
HINTON, M. and WILLIAMS, B. M. <i>Salmonella dublin</i> infection in adult cattle: a slaughterhouse and knackery survey in South West Wales . . . . .	121



## No. 2 (APRIL 1977)

	PAGE
TAN, R. J. S., LIM, EK-WANG and TEO, HOCK-KIN. <i>Torulopsis glabrata</i> infections in Singapore: a 4-year study . . . . .	129
BURRIDGE, M. J., SCHWABE, C. W. and PULLUM, T. W. Path analysis: application in an epidemiological study of echinococcosis in New Zealand . . . . .	135
BURRIDGE, M. J. and SCHWABE, C. W. Epidemiological analysis of factors influencing rate of progress in <i>Echinococcus granulosus</i> control in New Zealand . . . . .	151
BALLUZ, S. A., JONES, H. H. and BUTLER, M. The persistence of poliovirus in activated sludge treatment . . . . .	165
DE MIK, G. and DE GROOT, IDA. The germicidal effect of the open air in different parts of the Netherlands . . . . .	175
DE MIK, G., DE GROOT, IDA and GERBRANDY, J. L. F. Survival of aerosolized bacteriophage $\phi$ X174 in air containing ozone-olefin mixtures . . . . .	189
DE MIK, G. and DE GROOT, IDA. Mechanisms of inactivation of bacteriophage $\phi$ X174 and its DNA aerosols by ozone and ozonized cyclohexene . . . . .	199
CALLOW, KATHLEEN A. and BEARE, A. S. Influenza A neuraminidase antibodies in children and young adults studied by serum absorption . . . . .	213
P.H.L.S. COMMITTEE ON INFLUENZA. Influenza surveillance 1972-75 . . . . .	223
DOLBY, JEAN M., STEPHENS, SUSAN and HONOUR, PAULINE. Bacteriostasis of <i>Escherichia coli</i> by milk II. Effect of bicarbonate and transferrin on the activity of infant feeds. . . . .	235
EDINGTON, N., WATT, R. G., PLOWRIGHT, W., WRATHALL, A. E. B. and DONE, J. T. Experimental transplacental transmission of porcine cytomegalovirus . . . . .	243
CHAU, P. Y., SHORTRIDGE, K. F. and HUANG, C. T. Salmonella in pig carcasses for human consumption in Hong Kong: a study of the mode of contamination . . . . .	253
MADELEY, C. H., COSGROVE, B. P., BELL, E. J. and FALLON, R. J. Stool viruses in babies in Glasgow. I. Hospital admissions with diarrhoea . . . . .	261
TIZARD, I. R., CHAUHAN, S. S. and LAI, C. H. The prevalence and epidemiology of toxoplasmosis in Ontario . . . . .	275
FRASER, CHERRY A. M., BALL, LYN C., MORRIS, C. A. and NOAH, N. D. Serological characterization of Group-A streptococci associated with skin sepsis in meat handlers . . . . .	283
ANDERSON, E. S., WARD, LINDA R., DE SAXE, MAUREEN J. and DE SA, J. D. H. Bacteriophage-typing designations of <i>Salmonella typhimurium</i> . . . . .	297

## No. 3 (JUNE 1977)

DRION, E. F. and MOSSEL, D. A. A. The reliability of the examination of foods, processed for safety, for enteric pathogens and Enterobacteriaceae: a mathematical and ecological study . . . . .	301
--	-----

*Contents*

vii

	PAGE
HOLLEY, MARGUERITE P. and BARTZOKAS, C. A. Tuberculin testing in hospital personnel . . . . .	325
SHIELD, M. J., STANFORD, J. L., PAUL, R. C. and CARSWELL, J. W. Multiple skin testing of tuberculosis patients with a range of new tuberculins, and a comparison with leprosy and <i>Mycobacterium ulcerans</i> infection . . . . .	331
SOBEY, W. R., CONOLLY, DOROTHY and MENZIES, W. Myxomatosis: breeding large numbers of rabbit fleas ( <i>Spilopsyllus cuniculi</i> Dale) . . . . .	349
PINNEY, ALISON M., WIDDOWSON, JEAN P. and MAXTED, W. R. Inhibition of $\beta$ -haemolysis by opacity factor in group A streptococci . . . . .	355
SMITH, A. J. and DAVIES, JOAN R. The response to inactivated influenza A(H3N2) vaccines: the development and effect of antibodies to the surface antigens . . . . .	363
SCHOUB, B. D., GREEFF, A. S., LECATSAS, G., PROZESKY, O. W., HAY, I. T., PRINSLOO, J. G. and BALLARD, R. C. A microbiological investigation of acute summer gastroenteritis in Black South African infants . . . . .	377
PINEGAR, J. A. and BUXTON, J. D. An investigation of the bacteriological quality of retail vanilla slices . . . . .	387
ALCOCK, S. R. Acute otitis externa in divers working in the North Sea: a microbiological survey of seven saturation dives . . . . .	395
HEIJTINK, R. A., BACKX, G., VAN DER HORST, J. M. and MASUREL, N. Complement fixation and neutralization RS antibodies in maternal and neonatal sera . . . . .	411
MOFFAT, MARGARET A. J., HEYWOOD, S. N., LAUGHTON, EILEEN, GOULD, JANINE J. and FREESTONE, D. S. Rubella in Orkney: seroepidemiology and vaccination . . . . .	419
RWEYEMAMU, M. M., BOOTH, J. C., PARRY, N. and PAY, T. W. F. Neutralization kinetics studies with type SAT2 foot-and-mouth disease virus strains. II. Antigenic differentiation of vaccine strains . . . . .	429
HARVEY, R. W. S., PRICE, T. H. and MORGAN, J. Salmonella surveillance with reference to pigs - Cardiff abattoir, 1968-1975 . . . . .	439