

Vol. 71, No. 4

December 1973

C.13-10

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., M.A.

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., M.R.C.P.

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



CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW1 2DB
American Branch: 32 East 57th Street, New York, N.Y. 10022

1973 subscription per volume £11.50 net (US \$38.00) (4 parts)

Single parts £4.00 net (US \$13.00)

The Journal of Hygiene

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, 1973

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 quarterly.

Single parts £4.00 net (US \$13.00 in the U.S.A. and Canada) plus postage.

Four parts form a volume. The 1973 subscription price of a volume (which includes postage) is £11.50 net (US \$38.00 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 cannot be entertained unless received within three months after the date of publication.

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 USA 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., M.A.

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.

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., M.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 LXXI. 1973

CAMBRIDGE
AT THE UNIVERSITY PRESS
1973

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London NW1 2DB
American Branch: 32 East 57th Street, New York, N.Y. 10022

Printed in Great Britain at the University Printing House, Cambridge

Contents

No. 1 (MARCH 1973)

	PAGE
BURGESS, N. R. H., McDERMOTT, S. N. and WHITING, J. Aerobic bacteria occurring in the hind-gut of the cockroach, <i>Blatta orientalis</i>	1
BURGESS, N. R. H., McDERMOTT, S. N. and WHITING, J. Laboratory transmission of Enterobacteriaceae by the oriental cockroach, <i>Blatta orientalis</i> .	9
SELLERS, R. F. and FORMAN, A. J. The Hampshire epidemic of foot-and-mouth disease, 1967	15
MAXTED, W. R., WIDDOWSON, JEAN, P. and FRASER, CHERRY, A. M. Antibody to streptococcal opacity factor in human sera	35
KUMAR, S., SAXENA, S. P. and GUPTA, B. K. Carrier rate of salmonellas in sheep and goats and its public health significance	43
NABBUT, NASSIM H. Elevated temperature technique for the isolation of salmonellas from sewage and human faeces	49
HARVEY, R. W. S. and PRICE, T. H. H phase change of <i>Salmonella thompson</i> at different temperatures	55
INTERNATIONAL COMMITTEE FOR ENTERIC PHAGE TYPING. The geographical distribution of <i>Salmonella typhi</i> and <i>Salmonella paratyphi A</i> and <i>B</i> phage types during the period 1 January 1966 to 31 December 1969	59
ANÇ, Ö., ÖZEK, Ö., ÇETİN, E. T. and TÖRECİ, K. Salmonella serotypes isolated from tortoises and frogs in Istanbul	85
MANTLE, JOHN and TYRRELL, D. A. J. An epidemic of influenza on Tristan da Cunha	89
POTTER, C. W., McLAREN, C. and SHORE, S. L. Immunity to influenza in ferrets. V. Immunization with inactivated virus in adjuvant 65	97
DE SILVA, L. M., KHAN, M. S., KAMPFNER, G., TOBIN, J. O'H., GILLETT, R. and MORRIS, C. A. The post-mortem diagnosis of influenza infection by fluorescent IgG, IgA and IgM antibody studies on necropsy blood	107
MUSHIN, ROSE and ZIV, G. An epidemiological study of <i>Pseudomonas aeruginosa</i> in cattle and other animals by pyocine typing	113
CORBEL, M. J. The direct fluorescent antibody test for detection of <i>Brucella abortus</i> in bovine abortion material	123
ERWA, H. H. Studies on two methods for extraction of streptococcal T antigens .	131
LEWIS, F. A., GUST, I. D. and BENNETT, N. McK. On the aetiology of whooping cough	139
NYE, F. J. Social class and infectious mononucleosis	145
NYE, F. J. and LAMBERT, H. P. Epstein-Barr virus antibody in cases and contacts of infectious mononucleosis; a family study	151
HOWARD, C. J., GOURLAY, R. N. and BROWNLIE, J. The virulence of T-mycoplasmas, isolated from various animal species, assayed by intramammary inoculation in cattle	163

	PAGE
HAMBRAEUS, ANNA. Studies on transmission of <i>Staphylococcus aureus</i> in an isolation ward for burned patients	171
FLETCHER, S. M. and RONDELLE, C. J. M. <i>Micropolyspora faeni</i> and farmer's lung disease	185
DOLBY, JEAN, M. and STEPHENS, SUSAN. Pertussis antibodies in the sera of children exposed to <i>Bordetella pertussis</i> by vaccination or infection	193
WELLS, D. M. and JAMES, O. B. Transmission of infectious drug resistance from animals to man	209

No. 2 (JUNE 1973)

BROOKS, J. E. and BOWERMAN, A. M. Anticoagulant resistance in wild Norway rats in New York	217
CRONLY-DILLON, SUJATHA. Comparison of the virulence for mice of <i>Salmonella typhimurium</i> given by the intraperitoneal and subcutaneous routes	223
OXFORD, J. S. and POTTER, C. W. Aminoadamantane-resistant strains of influenza A2 virus	227
STOCKS, PERCY. Mortality from cancer and cardiovascular diseases in the county boroughs of England and Wales classified according to the sources and hardness of their water supplies, 1958–1967	237
BARRETT, J. C. Age, time and cohort factors in mortality from cancer of the cervix	253
DEAN, BEVERLY A., WILLIAMS, R. E. O., HALL, FELICITY and CORSE, JEAN. Phage typing of coagulase-negative staphylococci and micrococci	261
CORBEL, M. J. Examination of two bacterial strains designated ' <i>Brucella suis</i> biotype 5'	271
WHITE, W. G., BARNES, G. M., BARKER, E., GALL, D., KNIGHT, P., GRIFFITH, A. H., MORRIS-OWEN, R. M. and SMITH, J. W. G. Reactions to tetanus toxoid	283
SOBEY, W. R., ADAMS, K. M., JOHNSTON, G. C., GOULD, L. R., SIMPSON, K. N. G. and KEITH, K. Macquarie Island: the introduction of the European rabbit flea <i>Spilopsyllus cuniculi</i> (Dale) as a possible vector for myxomatosis	299
CORBEL, M. J. The nature of the antibody response to <i>Yersinia enterocolitica</i> serotype IX in cattle	309
HUGH-JONES, M., ALLAN, W. H., DARK, F. A. and HARPER, G. J. The evidence for the airborne spread of Newcastle disease	325
HARRIS, D. M. Staphylococcal infection in an intensive-care unit, and its relation to infection in the remainder of the hospital	341
IVESON, J. B. Enrichment procedures for the isolation of <i>Salmonella</i> , <i>Arizona</i> , <i>Edwardsiella</i> and <i>Shigella</i> from faeces	349
KOOPMAN, J. P. and JANSSEN, F. G. J. The occurrence of salmonellas and lactose-negative Arizonas in reptiles in The Netherlands, and a comparison of three enrichment methods used in their isolation	363

Contents

vii

PAGE

THOMAS, MAIR E. M. and TILLETT, HILARY E. Dysentery in general practice: a study of cases and their contacts in Enfield and an epidemiological comparison with salmonellosis	373
MCLEAN, D. M., CLARKE, ALISON M., GODDARD, E. J., MANES, A. S. MONTALBETTI, C. A. and PEARSON, R. E. California encephalitis virus endemicity in the Yukon Territory, 1972	391
BERNSTEIN-ZIV, RUTH, MUSHIN, ROSE and RABINOWITZ, KURT. Typing of <i>Pseudomonas aeruginosa</i> : comparison of the phage procedure with the pyocine technique	403
ANNEAR, D. I. and GRUBB, W. B. Preservation of <i>Staphylococcus aureus</i> with unstable antibiotic resistance by drying	411
CRAIG, J. and ANDREWS, A. V. Observations on the microbiological flora of canned Parma ham	417

No. 3 (SEPTEMBER 1973)

IVESON, J. B. and BRADSHAW, S. D. <i>Salmonella javiana</i> infection in an infant associated with a marsupial, the quokka, <i>Setonix brachyurus</i> , in Western Australia	423
DOWNIE, JEAN C. The sequential appearance of antibody and immunoglobins in nasal secretion after immunization of volunteers with live and inactivated influenza B virus vaccines	433
NARANG, H. K. Electron-microscopic study of measles virus in lymphocytes of affected children	447
AULICIEMS, A. Thermal sensations of secondary school children in summer.	453
HINTON, M. <i>Salmonella dublin</i> abortion in cattle. I. Observations on the serum agglutination test	459
HINTON, M. <i>Salmonella dublin</i> abortion in cattle. II. Observations on the whey agglutination test and the milk ring test	471
HARVEY, R. W. S., PRICE, T. H. and HALL, MARY L. M. Isolations of subgenus III salmonellas (arizonas) in Cardiff, 1959-1971	481
WILLIAMS, R. T., DUNSMORE, J. D. and SOBEY, W. R. Fluctuations in the titre of antibody to a soluble antigen of myxoma virus in field populations of rabbits, <i>Oryctolagus cuniculus</i> (L.), in Australia	487
TAKÁTSY, Gy and BARB, K. Antigenic analysis of prototype influenza A (H3N2) strains by the antiserum absorption method	501
WALDOV рEL, F. A. and PITTON, J. S. Typhoid fever imported from Mexico to Switzerland. Studies on R factor mediated chloramphenicol resistance	509
LAWN, A. M., BLYTH, W. A. and TAVERNE, JANICE. Interactions of TRIC agents with macrophages and BHK-21 cells observed by electron microscopy	515
SHAW, ELIZABETH J., DATTA, NAOMI, JONES, GLYNNE, MARR, FRANCES M. and FROUD, WENDY J. B. Effect of stay in hospital and oral chemotherapy on the antibiotic sensitivity of bowel coliforms	529

	PAGE
MILLER, D. L., REID, D., DIAMOND, JUDITH R., PEREIRA, MARGUERITE S. and CHAKRAVERTY, PRATIMA. Hong Kong influenza in the Royal Air Force 1968-70	535
SCHAEFER, W. B., BEER, J. V., WOOD, N. A., BOUGHTON, E., JENKINS, P. A. and MARKS, J. A bacteriological study of endemic tuberculosis in birds	549
WHYTE, W., SHAW, B. H. and BARNES, R. A bacteriological evaluation of laminar-flow systems for orthopaedic surgery	559
DEMPSTER, J. F. and KELLY, W. R. The fate of a toxigenic strain of <i>Staphylococcus aureus</i> in vacuum-packaged bacon	565
CLARK, R. P. A particle detector for use in ventilation engineering	577
WYON, D. P., ANDERSON, I. and LUNDQVIST, G. R. Thermal comfort zones obtained by two alternative methods: a note	585
RYLANDER, RAGNAR, VICTORIN, KATARINA and SÖRENSEN, STEFAN. The effect of saline on the eye irritation caused by swimming-pool water	587
THOMAS, MAIR E. M. and TILLETT, HILARY, E. Sonne dysentery in day schools and nurseries: an eighteen-year study in Edmonton	593
CRADOCK-WATSON, J. E., RIDEHALGH, MARGARET K. S., BOURNE, M. S. and VANDERVELDE, ELISE M. Nasal immunoglobulin responses in acute rubella determined by the immunofluorescent technique	603
ANDERSON, E. S., THRELFALL, E. J., CARR, JACQUELINE M. and SAVOY, L. G. Bacteriophage restriction in <i>Salmonella typhimurium</i> by R factors and transfer factors	619

No. 4 (DECEMBER 1973)

ALLANDER, C. and STRINDEHAG, O. Particle concentrations in patient rooms with various types of ventilation	633
HOBSON, D., BAKER, F. A., CURRY, R. L., BEARE, A. S. and MASSEY, P. M. O. The efficacy of live and inactivated vaccines of Hong Kong influenza virus in an industrial community	641
ALLEN, T. R. Common colds in Antarctica	649
ALLEN, T. R., BRADBURN, A. F., STOTT, E. J., GOODWIN, C. S. and TYRRELL, D. A. J. An outbreak of common colds at an Antarctic base after seventeen weeks of complete isolation	657
FLEMING, M. P. Trimethoprim-resistance and its transferability in <i>E. coli</i> isolated from calves treated with trimethoprim-sulphadiazine: a two year study	669
GIBSON, L. F. and COLMAN, G. Diphthericin types, bacteriophage types and sero-types of <i>Corynebacterium diphtheriae</i> strains isolated in Australia	679
GIBSON, L. F. Variation among strains of <i>Corynebacterium diphtheriae</i> during an outbreak in a restricted environment	691
MILES, J. A. R. The ecology of Whataroa virus, an alphavirus, in South Westland, New Zealand	701

Contents

ix

	PAGE
ASAOKAWA, Y., AKAHANE, S., KAGATA, N., NOGUCHI, M., SAKAZAKI, R. and TAMURA, K. Two community outbreaks of human infection with <i>Yersinia</i> <i>enterocolitica</i>	715
LEVISSON, S. and RAZIN, S. Isolation, ultrastructure and antigenicity of <i>Myco-</i> <i>plasma galisepticum</i> membranes	725
DEMPSTER, J. F. A note on the hygiene of meat mincing machines	739
SMITH, G. R. Effect of sub-lethal treatment with formalin on the germination of <i>Aspergillus fumigatus</i> spores	745
HABERSHON, R. B., MOLYNEUX, M. E., SLAVIN, G., LOEWI, G. and TYRRELL, D. A. J. Skin tests with influenza virus	755
MORRIS, J. E. W. and FALLON, R. J. Studies on the microbial flora in the air of submarines and the nasopharyngeal flora of the crew	761
HELLER, E. D. and SMITH, H. WILLIAMS. The incidence of antibiotic resistance and other characteristics amongst <i>Escherichia coli</i> strains causing fatal infection in chickens: the utilization of these characteristics to study the epidemiology of the infection	771
MARA, D. D. A single medium for the rapid detection of <i>Escherichia coli</i> at 44° C	783
HAMBRAEUS, ANNA. Dispersal and transfer of <i>Staphylococcus aureus</i> in an isolation ward for burned patients	787
HAMBRAEUS, ANNA. Transfer of <i>Staphylococcus aureus</i> via nurses' uniforms	799
DEMPSTER, J. F., REID, S. N. and CODY, O. Sources of contamination of cooked ready-to-eat cured and uncured meats	815
MACNAMARA, F. N., MITCHELL, R. and MILES, J. A. R. A study of immunity to rubella in villages in the Fiji Islands using the haemagglutination inhibition test	825

The Journal of Hygiene 1974

In 1974 the Journal will be published as two volumes of three parts each and the annual extent will be increased by 128 pages to 960 pages. The subscription price of the Journal for Volumes 72 and 73 (1974) will be £8 per volume, i.e. £16 per year.