

**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

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.

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. 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

E. T. C. SPOONER, C.M.G., M.D., F.R.C.P.

Dean, London School of Hygiene and Tropical Medicine

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

Lately Director of the Public Health Laboratory Service

VOLUME LXVII. 1969

CAMBRIDGE
AT THE UNIVERSITY PRESS
1969

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London, N.W.1
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 1969)

	PAGE
BEARE, A. S., TYRRELL, D. A. J., HOBSON, D., HOWELLS, C. H. L., PEREIRA, M. S., POLLOCK, T. M. and TYLER, L. E. Live influenza B vaccine in volunteers	1
SMORODINTSEV, A. A., DUBOV, A. V., ILYENKO, V. I. and PLATONOV, V. G. A new approach to development of live vaccine against tick-borne encephalitis	13
HENDERSON, R. J. The outbreak of foot-and-mouth disease in Worcestershire. An epidemiological study: with special reference to spread of the disease by wind- carriage of the virus	21
HARDING, LYNN and WILLIAMS, R. E. O. Selection of <i>Staphylococcus aureus</i> in cultures from air samples	35
OXFORD, J. S. and POTTER, C. W. Chick embryo lethal orphan (CELO) virus as a possible contaminant of egg-grown virus vaccines	41
CALIA, F. M., WOLINSKY, E., MORTIMER, E. A. Jr., ABRAMS, J. S. and RAMMEL- KAMP, C. H. Jr. Importance of the carrier state as a source of <i>Staphylococcus aureus</i> in wound sepsis.	49
AULICIEMS, A. Thermal requirements of secondary schoolchildren in winter	59
POTTER, C. W. H I antibody to various influenza viruses and adenoviruses in indi- viduals of blood groups A and O	67
SANFORD, D. A., LESLIE, D. A., McKEON, J. A., CRONE, P. B. and HOBBS, BETTY C. <i>Salmonella senftenberg</i> in the Sunderland area	75
HOBBS, BETTY C. and HUGH-JONES, M. E. Epidemiological studies on <i>Salmonella senftenberg</i> . I. Relations between animal foodstuff, animal and human isolations	81
HUGH-JONES, M. E. Epidemiological studies on <i>Salmonella senftenberg</i> . II. Infections in farm animals	89
LIDWELL, O. M. and TOWERS, A. G. Protection from microbial contamination in a room ventilated by a uni-directional air flow	95
STEELE, P. R. M., DAVIES, J. D. and GREAVES, R. I. N. Some factors affecting the viability of freeze-thawed T4 bacteriophage.	107
O'REILLY, K. J. and WHITAKER, A. M. The development of feline cell lines for the growth of feline infectious enteritis (panleucopaenia) virus	115
PUBLIC HEALTH LABORATORY SERVICE. The occurrence of <i>Coxiella burnetii</i> in North-Western England and North Wales	125
IVESON, J. B., MACKAY-SCOLLAY, E. M. and BAMFORD, V. <i>Salmonella</i> and Arizona in reptiles and man in Western Australia	135
CUMMING, J. D. and McEVEDY, C. P. An outbreak of 'winter vomiting disease' in a university hall of residence	147
NAKAMURA, M., SCHULZE, JUDITH A. and CROSS, W. R. Factors affecting lecithinase activity and production in <i>Clostridium welchii</i>	153

SCHULZE, JUDITH A. and NAKAMURA, M. Haemolytic activity of the alpha and theta toxins of <i>Clostridium welchii</i>	163
---	-----

No. 2 (JUNE 1969)

PAPAEVANGELOU, G. J. Frequency of rubella antibodies among adult population in Greece	175
HARPER, J. and SHORTRIDGE, K. F. A selective motility medium for routine isolation of <i>Salmonella</i>	181
VELAUDAPILLAI, T., NILES, G. R. and NAGARATNAM, W. Salmonellas, shigellas and enteropathogenic <i>Escherichia coli</i> in uncooked food	187
GOODWIN, R. F. W., HODGSON, RUTH G., WHITTLESTONE, P. and WOODHAMS, ROSEMARY L. Immunity in experimentally induced enzootic pneumonia of pigs	193
LIVINGSTONE, D. J. An appraisal of sewage pollution along a section of the Natal coast	209
BAIRD, G. and WHYTE, W. Air-movement control for treatment and isolation rooms	225
OLDS, R. J. The effect of the tapeworm <i>Hymenolepis nana</i> on immunity to tuberculosis in mice	233
JONES, R. J. Detoxification of an immunogenic fraction from a culture filtrate of <i>Pseudomonas aeruginosa</i>	241
GILBERT, R. J. Cross-contamination by cooked-meat slicing machines and cleaning cloths	249
VEEN, J. VAN DER, OEI, KIEM GIOK and ABARBANEL, M. F. W. Patterns of infections with adenovirus types 4, 7 and 21 in military recruits during a 9-year survey	255
LEHMANN-GRUBE, F. Dose-response relationships of lymphocytic choriomeningitis viruses in mice and L cell tube cultures	269
VASSILIADIS, P., KANELAKIS, A. and PAPADAKIS, J. Sulphadiazine-resistant group A meningococci isolated during the 1968 meningitis epidemic in Greece	279
HOYLE, L. The chemical reactions of the haemagglutinins and neuraminidases of different strains of influenza viruses. I. Effect of reagents reacting with amino acids in the active centres	289
HOYLE, L. The chemical reactions of the haemagglutinins and neuraminidases of different strains of influenza viruses. II. Effects of reagents modifying the higher order structure of the protein molecule	301
GREAVES, J. H. and AYRES, PRISCILLA. Some rodenticidal properties of coumatetralyl.	311
HOWES, D. W. Overlap and the errors of plaque counting. I. The overlap biases of observed counts and their corrections	317

HOWES, D. W. and FAZEKAS DE ST GROTH, S. Overlap and the errors of plaque counting. II. The bias of the variance and the concealment of errors . . .	335
CAUNT, ANNE E. and SHAW, D. G. Neutralization tests with varicella-zoster virus	343
SCHILD, G. C. and NEWMAN, R. W. Antibody against influenza A2 virus neuraminidase in human sera	353
PUBLIC HEALTH LABORATORY SERVICE. A minerals-modified glutamate medium for the enumeration of coliform organisms in water	367

NO. 3 (SEPTEMBER 1969)

LARIN, N. M., SAXBY, N. V. and BUGGEY, D. Quantitative aspects of <i>Mycoplasma pneumoniae</i> -cell relationships in cultures of lung diploid fibroblasts . . .	375
ERRINGTON, F. P. and POWELL, E. O. A cyclone separator for aerosol sampling in the field	387
JENKINS, H. R. and HENDERSON, R. J. The source of bacteria in fresh cream, and the methylene blue reduction test as a guide to hygienic quality . . .	401
MCDEVITT, D. G. and MCCAUGHEY, W. J. Brucellosis in Northern Ireland. A serological survey.	409
AYLIFFE, G. A. J., BABB, J. R., COLLINS, B. J. and LOWBURY, E. J. L. Transfer areas and clean zones in operating suites	417
WHYTE, W., BAIRD, G. and ANNAND, R. Bacterial contamination on the surface of hospital linen chutes	427
DRUETT, H. A. A mobile form of the Henderson apparatus	437
COLLIER, L. H. and MOGG, ANNE E. Dissemination and immunogenicity of live TRIC agent in baboons after parenteral injection. II. Experiments with a 'slow-killing' strain	449
IVESON, J. B. and MACKAY-SCOLLAY, E. M. Strontium chloride and strontium selenite enrichment broth media in the isolation of <i>Salmonella</i>	457
GOODWIN, R. F. W., HODGSON, RUTH G., WHITTLESTONE, P. and WOODHAMS, ROSEMARY L. Some experiments relating to artificial immunity in enzootic pneumonia of pigs	465
TANNER, ELIZABETH I., GRAY, J. D., REBELLO, P. V. N. and GAMBLE, D. R. Terminal bronchopneumonia. A bacteriological and histological study of 111 necropsies	477
TAYLOR, P. J., MILLER, CHRISTINE L., POLLOCK, T. M., PERKINS, F. T. and WESTWOOD, M. A. Antibody response and reactions to aqueous influenza vaccine, simple emulsion vaccine and multiple emulsion vaccine	485
AGARWAL, K. K., ELLIOTT, S. D. and LACHMANN, P. J. Streptococcal infection in young pigs. III. The immunity of adult pigs investigated by the bactericidal test	491

	PAGE
JEPHCOTT, A. E., MARTIN, D. R. and STALKER, R. <i>Salmonella</i> excretion by pet terrapins	505
SOMPOLINSKY, D., GLUSKIN, I. and ZIV, G. Pantothenate-requiring dwarf colony variants of <i>Staphylococcus aureus</i> as the etiological agent in bovine mastitis.	511
HARVEY, R. W. S., PRICE, T. H., FOSTER, D. W. and GRIFFITHS, W. C. Salmonellas in sewage. A study in latent human infection	517
HARRIS, D. M., ORWIN, J. M., COLQUHOUN, J. and SCHROEDER, H. G. Control of cross-infection in an intensive care unit	525
PETO, S. and MAIDMENT, B. J. Tables of the upper limit to the estimate of the density of contaminating particles in a medium	533
SANYAL, S. C., NARAYANASWAMI, A. and MUKERJEE, S. Antigenic analysis of vibrio culture filtrate and vaccine El Tor vibrio	539
GARDNER, SYLVIA D. The isolation of parainfluenza 4 subtypes A and B in England and serological studies of their prevalence	545
PEREIRA, MARGUERITE S., CHAKRAVERTY, PRATIMA, PANE, A. R. and FLETCHER, W. B. The influence of antigenic variation on influenza A2 epidemics	551
MILLER, D. L. and LEE, J. A. Influenza in Britain 1967-68.	559

No. 4 (DECEMBER 1969)

DAVIES, J. D. and KELLY, M. J. The preservation of bacteriophage H1 of <i>Corynebacterium ulcerans</i> U103 by freeze-drying	573
HOLLINGDALE, M. R. and LEMCKE, RUTH M. The antigens of <i>Mycoplasma hominis</i>	585
DOWNIE, A. W., ST VINCENT, L., RAO, A. R. and KEMPE, C. H. Antibody response following smallpox vaccination and revaccination	603
DOWNIE, A. W., ST VINCENT, L., GOLDSTEIN, L., RAO, A. R. and KEMPE, C. H. Antibody response in non-haemorrhagic smallpox patients	609
DOWNIE, A. W., FEDSON, D. S., ST VINCENT, L., RAO, A. R. and KEMPE, C. H. Haemorrhagic smallpox	619
KEMPE, C. H., DEKKING, F., ST VINCENT, L., RAO, A. R. and DOWNIE, A. W. Conjunctivitis and subclinical infection in smallpox	631
BAXBY, DERRICK. Variability in the characteristics of pocks produced on the chick chorioallantois by white pock mutants of cowpox and other poxviruses	637
WILLIAMS, R. E. O. and HARDING, LYNN. Studies of the effectiveness of an isolation ward	649
STURDY, PATRICIA M., MCQUILLIN, JOYCE and GARDNER, P. S. A comparative study of methods for the diagnosis of respiratory virus infections in childhood	659
SELLERS, R. F. & PARKER J. Airborne excretion of foot-and-mouth disease virus	671
STEELE, P. R. M., DAVIES, J. D. and GREAVES, R. I. N. Some factors affecting the viability of freeze-thawed T4 bacteriophage. II. The influence of certain electrolytes on the degree of inactivation	679

	PAGE
DUCA, EUGENIA, TEODOROVICI, GR., RADU, C., VIȚĂ, ALLA, TALAȘMAN-NICULESCU, PAULA, BERNESCU, ELIZABETA, FELDI, C. and ROȘCA, V. A. new nephritogenic streptococcus	691
SOWA, SHIONA, SOWA, J., COLLIER, L. H. and BLYTH, W. A. Trachoma vaccine field trials in the Gambia	699
MEEDENIYA, KAMINI. Investigations into the contamination of Ceylon desiccated coconut	719
MAYER, V., BLAŠKOVIC, D., ERNEK, E. and LIBÍKOVÁ, H. The serological response and long-lasting resistance against infection with louping-ill virus in sheep immunized with a highly attenuated tick-borne encephalitis virus	731
LUDLAM, G. B., WONG, SIMON K. K., and FIELD, C. ELAINE. Toxoplasma antibodies in sera from Hong Kong	739
SOBEY, W. R., Selection for resistance to myxomatosis in domestic rabbits (<i>Oryctolagus cuniculus</i>)	743

Corrigendum

F. W. WINTON and A. J. KEAY. *J. Hyg., Camb.* (1968) **66**, 325–42

On page 330, line 7;

For 28 out of 210 nurses' hands (13·4 %)

Read 28 out of 70 nurses' hands (40·0%).