

# THE JOURNAL OF HYGIENE

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

EDITED BY

H. J. BENSTED, O.B.E., M.C., M.R.C.P.

LATELY DIRECTOR, CENTRAL PUBLIC HEALTH LABORATORY

IN CONJUNCTION WITH

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

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

R. I. N. GREAVES, M.D.

J. O. IRWIN, M.A., D.Sc., Sc.D., F.S.S.

Sir WILSON JAMESON, G.B.E., K.C.B., M.D., F.R.C.P., D.P.H.

E. T. C. SPOONER, M.D.

G. S. WILSON, M.D., F.R.C.P., D.P.H.



CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London, N.W. 1

American Branch: 32 East 57th Street, New York 22, N.Y.

*Price Twenty-five Shillings net*

*(U.S.A. \$4.25)*

CAMBRIDGE  
UNIVERSITY  
PRESS  
LIBRARY  
LONDON



## Stability !

Amidst the sea of rising costs consider **GURR'S** record in **MICROSCOPICAL STAIN** prices.

	1919 list	Current list
Toluidine Blue 1 g.	5/3	4/6
Crystal Violet 10 g.	4/9	3/6

*Two examples from many—*

Growing demand has enabled us generally to whittle prices—and you have shared the benefit for nearly 40 years.

Please forgive us this dissertation on our own efficiency—Your confidence and support have been vital, have always been appreciated, and will enable us to continue to bring you the best. Our slogan in 1919—“**STIPULATE GURR'S**” is still the best advice.

Ask for catalogue E4.



**George T. Gurr Ltd.**

136-138 New Kings Road

London, S.W. 6

Telephone: RENown 5482 (3 lines)

Telegrams: Microstain, Walgreen, London

## MICHROME STAINS

and Reagents

for Microscopy & Biology

Adonitol	Giemsa Stain	Pyronin
Bromocresol Green	Janus Green, B	Sodium Desoxy- cholate
Carmine Acid	Lacmoid	Sudan Black
Cedarwood Oil	Leishman Stain	Toluidine Blue
Celloidin	Luxol Fast Blue	Urease
Chlorazol Black	Methyl Green	Wright Stain, &c.
Gallocyanin	Nile Blue	

**AQUAMOUNT:** a moderately quick-drying aqueous colourless, neutral mountant.

**OPTOIL:** synthetic, non-sticky immersion oil.

**CRISTALITE & CLEARMOUNT:** synthetic, colourless, neutral mountants.

**EDWARD GURR, LTD.**

42 Upper Richmond Road West  
LONDON, S.W.14

Telephones: PROspect 8051 and 7606

Service, uniform high quality, reliability, and immediate delivery

Ready early 1958: “Methods of Analytical Histology & Histochemistry”, by Edward Gurr, about 475 pages, Royal 8vo, price about 70/-.

Now ready:

“A Practical Manual of Medical & Biological Staining Techniques”, 460 pages, 42/-, Postage 1/6, by E. GURR.

## BOOKS ON HYGIENE

**H. K. LEWIS & Co. Ltd.**, can supply all Standard Works and Text-books on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request

### MEDICAL AND SCIENTIFIC LIBRARY

ANNUAL SUBSCRIPTION FROM £1. 17s. 6d.

**The Library** includes all standard and recent works in all branches of Hygiene and Sanitary Science.

**Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

**THE LIBRARY CATALOGUE** revised to December 1956, containing a classified Index of Authors and Subjects. £2. 2s. net; postage 2s. To subscribers to the Library, £1. 5s.; postage 2s.

*Nearly Ready*

**Secondhand Department.** A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

**LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1**

Telephone: EUSton 4282. Telegrams: Publicavit: Westcent: London

Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.



# **DEHYDRATED CULTURE MEDIA**

**QUICKLY PROVIDE SELDOM USED MEDIA  
SAVE STORAGE SPACE**

**Details upon request**

*Obtainable from Laboratory suppliers or direct from*  
**OXO LIMITED (Medical Dept)**  
**16 SOUTHWARK BRIDGE ROAD, LONDON, S.E. 1**  
**WATERloo 4515**

# The Journal of General Microbiology

Editors: B. C. J. G. KNIGHT and A. F. B. STANDFAST

Vol. 18, No. 1

Contents

February 1958

- MACLENNAN, J. D., MANDL, I. and HOWES, E. L. New proteolytic enzymes from *Clostridium histolyticum* filtrates.
- OAKLEY, C. L. and WARRACK, H. The cysteine-inactivated proteinase ( $\delta$  antigen) of *Clostridium histolyticum*.
- MANDL, I. and ZAFFUTO, S. F. Serological evidence for a specific *Clostridium histolyticum* gelatinase.
- RAPER, K. B. and SMITH, M. M. *Acytostelium leptosomum*: a unique cellular slime mould with an acellular stalk.
- SMITH, W. K. A survey of the production of pectic enzymes by plant pathogenic and other bacteria.
- SMITH, W. K. Chromatographic examination of the products of digestion of pectic materials by culture solutions of plant pathogenic and other bacteria.
- BROWN, A. M. Intracerebral infection of mice with *Haemophilus pertussis* and passive protection by hyperimmune rabbit sera.
- KAPLAN, C. The heat inactivation of vaccinia virus.
- GEST, H. and HOROWITZ, N. H. Activation and thermostability of *Neurospora crassa* tyrosinase.
- HARRIS, K. and BRADLEY, D. E. Some unusual chrysophyceae studied in the electron microscope.
- GEORGALA, D. L. The bacterial flora of the skin of North Sea cod.
- BARBER, M. and WILDY, P. A study of the antigenic specificity of Staphylococcal coagulase in relation to bacteriophage group.
- SAMEJIMA, H. and MYERS, J. On the heterotrophic growth of *Chlorella pyrenoidosa*.
- DAVIES, D. A. L. The smooth and rough somatic antigens of *Pasteurella pseudotuberculosis*.
- CRUMPTON, M. J., DAVIES, D. A. L. and HUTCHISON, A. M. The serological specificities of *Pasteurella pseudotuberculosis* somatic antigens.
- CLOWES, R. C. Nutritional studies of cysteineless mutants of *Salmonella typhimurium*.
- CLOWES, R. C. Investigation of the genetics of cysteineless mutants of *Salmonella typhimurium* by transduction.
- CUMMINS, C. S. and HARRIS, H. Studies on the cell wall composition and taxonomy of Actinomycetales and related groups.
- PINTNER, I. J. and PROVASOLI, L. Artificial cultivation of a red-pigmented marine blue-green alga, *Phormidium persicinum*.
- MCCLOY, E. W. Lysogenicity and immunity to Bacillus phage W.
- MILLER, S. and AVI-DOR, Y. The effect of inorganic ions on respiration in *Pasteurella tularensis* and *Escherichia coli*.
- Etc., etc.

*The subscription rate is 90s. net per volume of 3 parts. Single parts 35s. each, plus postage. Two volumes will be issued each year. Orders should be sent to*

**CAMBRIDGE UNIVERSITY PRESS**  
**BENTLEY HOUSE, 200 EUSTON ROAD, LONDON, N.W. 1**

# The Quarterly Journal of Medicine

Edited by D. H. BRINTON, W. D. W. BROOKS, A. M. COOKE,  
D. M. DUNLOP, H. L. MARRIOTT, ROBERT PLATT

## CONTENTS

NEW SERIES. VOL. XXVI. No. 103. JULY 1957

- The Effect of Cortisone upon the Reaction of the Skin to Tuberculin in Tuberculosis and in Sarcoidosis.** By K. M. CITRON and J. G. SCADDING.
- Veno-Occlusive Disease of the Liver.** By K. L. STUART and G. BRAS. With Plates 27 to 31.
- Primary Aldosteronism.** By M. D. MILNE, R. C. MUEHRCKE and I. AIRD. With Plates 32 and 33.
- The Immediate Treatment of Cerebral Embolism.** By A. BARHAM CARTER.
- A Subacute Progressive Encephalopathy with Mutism, Hypokinesia, Rigidity, and Myoclonus.** By C. A. PALLIS and J. D. SPILLANE. With Plates 34 to 36.
- Observations in Man upon the Osmotic Behaviour of the Body Cells after Trauma.** By V. WYNN and B. J. HOUGHTON.
- Jejunal Biopsy after Partial Gastrectomy.** By I. McLEAN BAIRD and O. G. DODGE. With Plates 37 to 40.

Single Numbers 16s. net each      Subscription 50s. per annum

**OXFORD UNIVERSITY PRESS, LONDON E.C. 4**

**THE  
JOURNAL OF HYGIENE**

# THE JOURNAL OF HYGIENE

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

EDITED BY

H. J. BENSTED, O.B.E., M.C., M.R.C.P.

LATELY DIRECTOR OF THE CENTRAL PUBLIC HEALTH LABORATORY, COLINDALE

IN CONJUNCTION WITH

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.

Professor of Bacteriology in the University of Liverpool

R. I. N. GREAVES, M.D.

Reader in Bacteriology in the University of Cambridge

J. O. IRWIN, M.A., D.Sc., Sc.D., F.S.S.

Of the Medical Research Council's Statistical Research Unit,  
London School of Hygiene and Tropical Medicine

Sir WILSON JAMESON, G.B.E., K.C.B., M.D., F.R.C.P., D.P.H.

Some time Chief Medical Officer, Ministries of Health and Education

E. T. C. SPOONER, M.D.

Professor of Bacteriology and Immunology in the University of London

G. S. WILSON, M.D., F.R.C.P., D.P.H.

Director, Public Health Laboratory Service (Medical Research Council, London)

VOLUME LV. 1957

CAMBRIDGE  
AT THE UNIVERSITY PRESS  
1957

*Printed in Great Britain at the University Press, Cambridge  
(Brooke Crutchley, University Printer)  
and published by the Cambridge University Press  
Bentley House, 200 Euston Road, London, N.W. 1  
American Branch : 32 East 57th Street, New York 22, N. Y.  
Agent in Canada : The Macmillan Company of Canada Limited*



# CONTENTS

## NO. 1 (MARCH 1957)

	PAGE
GRIFFITH, THE LATE A. STANLEY. The types of tubercle bacilli in lupus and scrofuloderma . . . . .	1
HUTCHINSON, R. IRENE. <i>Escherichia coli</i> (O-types 111, 55 and 26) and their association with infantile diarrhoea. A five year study . . . . .	27
UNGAR, J. and BASIL, B. Routine experience of the mouse-protection assay of pertussis vaccine. (With 2 Figures in the Text) . . . . .	45
IRWIN, J. O. and STANDFAST, A. F. B. The intracerebral mouse-protection test for pertussis vaccines . . . . .	50
MARKS, JOHN and COOMBS, R. R. A. The conglutination phenomenon. XI. Immunoconglutinin in human sera. (With 4 Figures in the Text) . . . . .	81
OLITZKI, A. L., FLEISCHHACKER, E. and OLITZKI, Z. The function of the Vi antigen of <i>Salmonella paratyphi</i> A. Comparison between virulence, agglutinability by anti-O immune sera and sensitivity to the bactericidal action <i>in vitro</i> . . . . .	91
CROWLEY, NUALA, NELSON, MERRAN and STOVIN, SYBILLE. Epidemiological aspects of an outbreak of encephalomyelitis at the Royal Free Hospital, London, in the summer of 1955. (With 5 Figures in the Text) . . . . .	102
WESTWOOD, J. C. N., PHIPPS, P. H. and BOULTER, E. A. The titration of vaccinia virus on the chorio-allantoic membrane of the developing chick embryo. (With 1 Figure in the Text) . . . . .	123
CRUICKSHANK, THE LATE J. C. The duration of bacteraemia in relation to the virulence of <i>Brucella</i> strains . . . . .	140

## NO. 2 (JUNE 1957)

FENNER, FRANK and MARSHAL, I. D. A comparison of the virulence for European rabbits ( <i>Oryctolagus cuniculus</i> ) of strains of myxoma virus recovered in the field in Australia, Europe and America. (With Plates 1-3 and 4 Figures in the Text) . . . . .	149
FENNER, FRANK, POOLE, W. E., MARSHALL, I. D. and DYCE, A. L. Studies in the epidemiology of infectious myxomatosis of rabbits. VI. The experimental introduction of the European strain of myxoma virus into Australian wild rabbit populations. (With Plate 4 and 2 Figures in the Text) . . . . .	192
SMITH, C. E. GORDON. A localized outbreak of dengue fever in Kuala Lumpur: serological aspects. (With 11 Figures in the Text) . . . . .	207
SMITH, C. E. GORDON and WESTGARTH, D. R. The use of survival time in the analysis of neutralization tests for serum antibody surveys. (With 2 Figures in the Text) . . . . .	224
EVANS, C. A., CHAMBERS, VELMA C., GIEDT, W. R. and WILSON, A. N. The immune status of a population at the termination of a severe epidemic of poliomyelitis. (With 2 Figures in the Text) . . . . .	239



	PAGE
SAMPLE, DONALD W. and EVANS, C. A. Estimates of the infection rates for poliomyelitis virus in the years preceding the poliomyelitis epidemics of 1916 in New York and 1945 in Mauritius. (With 2 Figures in the Text) . . .	254
LOWBURY, E. J. L. and RICKETTS, C. R. (With the technical assistance of M. HALL, L. HURST and H. A. LILLY.) Properdin and the defence of burns against infection. (With 4 Figures in the Text) . . . . .	266
BYWATERS, E. G. L., HOLBOROW, E. J., JOHNSON, G. D. and KELLY, R. J. Cord-blood antistreptolysin-O level according to parity and social class as a possible index of familial streptococcal experience. (With 1 Figure in the Text) . . . . .	276
BELYAVIN, G. The influenza virus flocculation reaction as a method of antigenic typing. (With 1 Figure in the Text) . . . . .	281
HOYLE, L. and FINTER, N. B. The use of influenza virus labelled with radi sulphur in studies of the early stages of the interaction of virus with the host cell. (With 1 Figure in the Text) . . . . .	290

### NO. 3 (SEPTEMBER 1957)

HURST, VALERIE. <i>Staphylococcus aureus</i> in the infant upper respiratory tract. I. Observations on hospital-born babies. (With 3 Figures in the Text) . . .	299
HURST, VALERIE. <i>Staphylococcus aureus</i> in the infant upper respiratory tract. II. Observations on domiciliary-delivered babies. (With 3 Figures in the Text) . . .	313
HOBSON, DEREK. The behaviour of a mutant strain of <i>Salmonella typhimurium</i> in experimental mouse typhoid. (With 3 Figures in the Text) . . . . .	322
HOBSON, DEREK. Resistance to reinfection in experimental mouse typhoid. (With 2 Figures in the Text) . . . . .	334
POLSON, A. and HAMPTON, J. W. F. Studies on poliomyelitis virus. Concentration and purification of the virus . . . . .	344
MAITLAND, H. B. and MAGRATH, D. I. The growth <i>in vitro</i> of vaccinia virus in chick embryo chorio-allantoic membrane, minced embryo and cell suspensions. (With 8 Figures in the Text) . . . . .	347
VAN DEN ENDE, The late M., POLSON, A. and TURNER, G. S. Experiments with the soluble antigen of rabies in suckling mouse brains . . . . .	361
SELZER, GOLDA. Adaptation of Mahoney, Type I, poliomyelitis virus to suckling mice. (With 2 Figures in the Text) . . . . .	374
FULTHORPE, A. J. Tetanus antitoxin titration by haemagglutination . . . . .	382
LARIN, N. M., GADDUM, RACHAEL and ORBELL, W. G. The complement activity of canine serum. (With 9 Figures in the Text) . . . . .	402
MOORE, B. Observations pointing to the conjunctiva as the portal of entry in salmonella infection of guinea-pigs. (With Plate 5) . . . . .	414
FINTER, N. B. and ARMITAGE, P. The membrane piece technique for <i>in vitro</i> infectivity titrations of influenza virus. (With 2 Figures in the Text) . . .	434

NO. 4 (DECEMBER 1957)

	PAGE
TYRRELL, D. A. J., BALDUCCI, D., SNELL, B. and ZAIMAN, T. ELISZBETH. The incidence of infection with poliovirus and other viruses in cases of aseptic meningitis ('nonparalytic poliomyelitis') in Sheffield in 1954 . . . . .	457
MCLEAN, D. M. and CAMERON, D. Aseptic meningitis due to infection with ECHO virus (Type 9). (With 2 Figures in the Text) . . . . .	464
LAHELLE, O. Aseptic meningitis caused by ECHO virus . . . . .	475
ISAACS, A. Antibodies to influenza viruses in the sera of Nigerians. (With 4 Figures in the Text) . . . . .	485
STEVENS, K. M. Poliovirus as an antigen. (With 1 Figure in the Text) . . . . .	489
KAPLAN, C. and BELYAVIN, G. The titration of vaccinia virus by the pock counting technique. (With 4 Figures in the Text) . . . . .	494
BOULTER, E. A. The titration of vaccinia neutralizing antibody on chorio-allantoic membranes. (With 7 Figures in the Text) . . . . .	502
ARCHER, G. T. L. and WHITBY, J. L. Protection of mice by living Vi and O vaccines against death caused by <i>Salmonella paratyphi C</i> . . . . .	513
MCLAREN, ANNE. The effect of vaccines and other substances upon the course of neurotropic virus infection. (With 2 Figures in the Text) . . . . .	527
HOUWINK, E. H. and ROLVINK, W. The quantitative assay of bacterial aerosols by electrostatic precipitation. (With 8 Figures in the Text) . . . . .	544
ARMITAGE, P. Studies in the variability of pock counts. (With 2 Figures in the Text) . . . . .	564