THE JOURNAL OF DAIRY RESEARCH

EDITED BY

C. C. THIEL

and

J. A. B. SMITH

B.Sc., Ph.D.

The National Institute for Research in Dairying, Shinfield, Reading C.B.E., PH.D., D.Sc., F.R.I.C. The Hannah Dairy Research Institute, Kirkhill, Ayr

ASSISTED BY

PROF. L. F. L. CLEGG (Canada)

DR D. P. CUTHBERTSON, C.B.E., F.R.S.E. (Aberdeen)

DR F. H. DODD (Reading)

DR H. P. DONALD, F.R.S.E. (Edinburgh)

PROF. P. J. J. FOURIE (South Africa)

DR T. GIBSON (Edinburgh)

SIR JOHN HAMMOND, C.B.E., F.R.S. (Cambridge)

MR G. LOFTUS HILLS (Australia)

DR J. O. IRWIN (London)

DR S. J. ROWLAND (Reading)

DR K. C. SEN (India)

DR R. WAITE (Ayr)

DR J. C. D. WHITE (Ayr)

DR H. R. WHITEHEAD, F.R.S.N.Z.

(New Zealand)

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)

Consultative Committee

PROF. R. G. BASKETT, O.B.E. PROF. E. L. CROSSLEY
PROF. R. C. GARRY, F.R.S.E. PROF. J. W. HOWIE
SIR ROBERT RAE, C.B.
DR J. A. B. SMITH, C.B.E.
DR C. C. THIEL

Secretary MR J. C. F. COLES

Editorial Assistant MR M. HARVEY, A.C.I.S.

The Journal of Dairy Research

was established in 1929 as a medium for the publication of the results of original research in dairy science and cognate subjects. It is published by the Cambridge University Press.

The subscription to the *Journal* is 60s. per volume, for orders placed in advance of publication, and covers three issues. Single copies may be purchased at 25s. each. Postage extra. Subscriptions may be sent to any bookseller or to the Cambridge University Press, Bentley House, 200 Euston Road, London, N.W. 1. The subscription price in the U.S.A. is \$10.00. Enquiries should be sent to the Cambridge University Press, American Branch, 32 East 57th Street, New York 22, U.S.A.

Back numbers of the *Journal* may be obtained from the publishers. Volumes 1 to 4, each part 25s. net. Volumes 5 to 28, each single part 25s., double parts 50s. net. Postage extra. (With the exception of Volume 6, No. 2, Volume 9, No. 1, Volume 10, Volume 11, No. 1 and Volumes 13 and 14 complete, which are out of print.)

THE JOURNAL OF THE

SOCIETY OF DAIRY TECHNOLOGY

17 DEVONSHIRE STREET, LONDON, W.1. Tel. Langham 5059

The Journal is issued in quarterly parts, four parts constituting a volume. The parts are usually issued in January, April, July and October each year.

The Subscription rate to non-members of the Society, payable in advance, is £2. 2s. 0d. net per volume (post free): single numbers, 13s. 0d. net. Subscriptions and all business enquiries should be sent to the Secretary, Society of Dairy Technology, 17 Devonshire Street, London, W. 1.

Each member of the Society receives one free copy of each number. One further copy of each number may (if available) be bought by members for 8s. 0d.

CONTENTS OF THE OCTOBER ISSUE

Two-day General Meeting

An Agriculturalist looks at Modern Methods of Milk Production, by H. I. MOORE Recorder Jars v. Milk Meters for Milking Machines, by C. C. THIEL

Liquid Cream Processing, by J. ROTHWELL Clotted Cream, by K. D. MADDEVER

Can Washing

Milk Testing—a forward look, by D. A. McKenzie Radioactive Fallout and the Milk Supply, by J. D. Burton

Plant Maintenance and the Problems of Mechanization, by D. J. GUE

The Design of Milk Bottle Washers, by H. C. W. KNIGHT

Obituaries

XVIth International Dairy Congress Section Notes

The Journal publishes not only papers read at meetings of the Society, but also papers on dairy technology by members and non-members

Advertising Offices: 9 GOUGH SQUARE 'LONDON' E.C. 4

Indian Journal of Dairy Science

Established in 1948 as a medium for the advancement and dissemination of knowledge in regard to dairy science. Published quarterly in March, June, September and December. Suscription £1 sterling or \$4.00 in dollar areas. For further particulars apply to the Hon. Joint Secretaries, Indian Dairy Science Association, Hosur Road, Bangalore 1 (India).

Editor: Dr Noshir N. Dastur, M.SC., Ph.D., A.I.I.SC.

(CONTENTS OF VOL. XIV No. 3, SEPTEMBER 1961)

Inheritance of Some Economic Characters in Hariana Cattle. I. Age at First Calving. Sukh Bir Singh and R. N. Desai.

Inheritance of Some Economic Characters in Hariana Cattle. II. Peak Yield. Sukh Bir Singh and R. N. Desai.

Influence of Age at first Calving on the First Lactation Performances in Dairy Cattle. K. P. SINGH and S. K. CHOUDHURY.

Effect of the Month of Calving on Milk Yield, Lactation Length and Calving Interval in Murrah Buffaloes. V. K. Bhatnagar, K. L. Lohia and O. P. Monga.

Study on the Calcium and Phosphorus Contents in the Milk of Kankrej Cows. V. V. MISTRY and B. M. PATEL.

Quantitative Relations among the Milk Constituents. I. Effect of Breed, Stage of Lactation and Age of Animals. R. P. SINGH, M. SINGH, Y. S. RAO and S. N. SINGH.

Effect of Pasteurisation and Cold Storage on Xanthine Oxidase Activity in Milk. M. K. Krishna Iyengar and H. Laxminarayana.

COMMONWEALTH BUREAU OF DAIRY SCIENCE & TECHNOLOGY-SHINFIELD READING ENGLAND

The Bureau is the world's information centre on all matters concerned with dairy husbandry, science and technology. It prepares abstracts, review articles, Technical Communications in book form, and undertakes to answer technical enquiries from authentic dairy scientists.

PUBLICATIONS INCLUDE

DAIRY SCIENCE ABSTRACTS

COMPILED MONTHLY FROM WORLD LITERATURE

Annual Subscription 100s, Od.

Technical Communications Nos. 2 and 3 have been published, entitled-

THE MILK FAT GLOBULE MEMBRANE by N. KING

Cloth bound 99 pp. Price 15s. od.

MILK AND BUTTERFAT RECORDING by E. D. ASHTON

Cloth bound 205 pp. Illustrated Price 30s. od.

Orders and subscriptions should be sent to

COMMONWEALTH AGRICULTURAL BUREAUX · CENTRAL SALES BRANCH FARNHAM ROYAL · ENGLAND

The Journal of General Microbiology

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

Vol. 30, No. 2

Contents

February 1963

- R. Ben-Gurion. On the nature of the 'Lethal Zygote' produced by crossing non-colicinogenic with colicinogenic bacteria.
- P. FILDES and D. KAY. The conditions which govern the adsorption of a tryptophan-dependent bacterio-phage to kaolin and bacteria.
- F. J. RYAN, T. OKADA and T. NAGATA. Spontaneous mutation in spheroplasts of Escherichia coli.
- B. A. D. STOCKER, S. M. SMITH and H. OZEKI. High infectivity of Salmonella typhimurium newly infected by the coll factor.
- M. R. J. SALTON. The relationship between the nature of the cell wall and the gram stain.
- G. D. FLOODGATE & P. R. HAYES. The Adansonian taxonomy of some yellow pigmented marine bacteria.
- P. H. GRAHAM. Vitamin requirements of root nodule
- D. A. HOPWOOD, G. SERMONTI and I. SPADA-SERMONTI. Heterozygous clones in *Streptomyces coelicolor*.
- F. W. CHATTAWAY, J. D. TOWNSLEY and A. J. E. BARLOW. On the mode of action of 11-deoxy-corticosterone on the metabolism of Trichophyton rubrum.

- J. O. BISHOP. Immunological assay of some immobilizing antigens of *Paramecium aurelia*, variety 1.
- R. F. HILL. Dose-mutation relationship in ultravioletinduced reversion from auxotrophy in *Escherichia* coli.
- R. F. HILL. The stability of spontaneous and ultraviolet-induced reversions from auxotrophy in Escherichia coli
- J. T. SMITH. Penicillinase and ampicillin resistance in a strain of Escherichia coli.
- B. HODGKINS and T. ALPER. Anaerobic growth as a factor influencing radiosensitivity.
- J. L. Reissig. Induction of forward mutants in the pyr-3 region of neurospora.
- J. L. Reissig. Spectrum of forward mutants in the pyr-3 region of neurospora.
- G. A. J. AYLIFFE. Ampicillin inactivation and sensitivity of coliform bacilli.

The subscription rate is 80s. net per volume of 3 parts. Single parts 35s. each, plus postage.

Three volumes will be issued each year. Orders should be sent to

Cambridge University Press, Bentley House, 200 Euston Road, London, N.W. 1

ANIMAL PRODUCTION

JOURNAL OF THE BRITISH SOCIETY OF ANIMAL PRODUCTION

Contents of Volume 5, Part 1, February 1963

- DONALD, H. P. Perinatal deaths among calves in a crossbred dairy herd.
- HOLMES, J. C. and LANG, R. W. Effects of fertilizer nitrogen and herbage dry-matte bility in bullocks. -matter content on herbage intake and digesti-
- LAIRD, R. (Jnr.) and ROBERTSON, J. B. A comparison of cubes and meal for growing and fattening pigs.
- LANGLANDS, J. P., CORBETT, J. L., McDonald, I. and Pullar, J. D. Estimates of the energy required for maintenance by adult sheep. 1. Housed sheep.
- LANGLANDS, J. P., CORBETT, J. L., McDonald, I., and Reid, G. W. Estimates of the energy required for maintenance by adult sheep. 2. Grazing sheep.
- LODGE, G. A. and MacPherson, R. M. The influence of plane of feeding in early life on the fertility of gilts.

- BLAXTER, K. L. and Wilson, R. S. The assessment of a crop husbandry technique in terms of animal production.

 MASON, I. L. Symptoms of muscular hypertrophy in hetero-zygous steers. zygous steers.
 - Preston, T. R., Whitelaw, F. G., Aitken, J. N., Macdearmid, A. and Charleson, Euphemia B. Intensive beef production.

 1. Performance of cattle given complete ground diets.
 - AITKEN, J. N., PRESTON, T. R., WHITELAW, F. G., MACDEARMID, A. and CHARLESON, EUPHEMIA B. 2. The effect of three, twelve or sixteen week weaning on the performance of Aberdeen-Angus crossbred cattle.
 - ROBINSON, J. F. and GUNN, R. G. Lamb mortality in Scottish
 - TAYLOR, ST C. S. Accuracy in measuring cattle with special reference to identical twins.
 - TAYLOR, ST C. S. and ROLLINS, W. C. Body size and conformation in identical twin cattle.

ANNUAL SUBSCRIPTION SINGLE PART

45s. (U.S.A. \$7,50) 17s. 6d. (U.S.A. \$2.75)

OLIVER AND BOYD LTD., Tweeddale Court, 14 High Street, Edinburgh, 1

IOURNAL OF APPLIED BACTERIOLOGY

(Formerly Proceedings of the Society for Applied Bacteriology)

Editors: S. E. JACOBS, D.Sc. AND D. J. JAYNE-WILLIAMS, Ph.D.

Contents of Vol. 25, No. 2, 1962

Obituary: Alexander Torovil Robert Mattick, C.B.E., B.Sc., Ph.D.-Influence of Penicillin on Cheese Starter Activity.-Further Studies on Aeromonas. I. Additional Strains and Supplementary Biochemical Tests.-Flora of Puget Sound Fish.-Distribution of Group D Streptococci in Cattle and Sheep .- Physiological and Serological Properties of Streptococcus bovis and Related Organisms Isolated from Cattle and Sheep.-Apparatus for the Uniform Spraying of Solid Nutrient Surfaces with Bacterial Suspensions.—Directed Isolation of Mutants Producing Increased Amounts of Metabolites.-Iodophors as Detergent-Sterilizers .- Mineral Nutrition of Hansenula spp. of Yeast in Relation to Fat Production .- Isolation of Salmonellae.-Sporulation and the Development of Resistance in Sporing Cultures of Clostridium welchii.-Retention of 32P-Labelled Rhizobium by Legume Seed after Inoculation by Vacuum Treatment.-Occurrence and Growth of Staphylococci on Packed Bacon, with Special Reference to Staphylococcus aureus.-Some Properties of Food Packaging Materials which Relate to the Microbial Flora of the Contents.-Microbiological Principles in Prepacking Meats.-Microbiology of Vacuum Packed Sliced Bacon.—Conditions Produced in Film Packages by Fresh Fruits and Vegetables and the Effect of these Conditions on Storage Life.

One volume usually of three numbers published annually

Price to non-members: 35/- per number

Publications Manager: A. H. WALTERS, Diversey Deosan Research Lab. 42 Weymouth Street, London, W. 1

BRADLEY & SON, LTD., THE CROWN PRESS, READING, ENGLAND