
THE JOURNAL OF DAIRY RESEARCH

EDITED BY

C. C. THIEL
B.Sc., Ph.D.

The National Institute for Research in Dairying,
Shinfield, Reading

and

J. A. B. SMITH
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 APRIL ISSUE

General Meeting

Subject: Utilization of Milk By-products

Skimmed Milk, by R. S. RENWICK

Whey, by L. HARDING

Casein, by M. M. MUERS

Cultured Milk Products, by T. R. ASHTON

Desirable Features in Automatic Bottling Lines,
by A. GRAHAM ENOCK

Section Notes

Recent Developments in Handling Fluid Milk,
by J. MATTHEWS

The Implications of the Quality Control Schemes,
by A. L. PROVAN

History of the Western Section, 1945-62.

*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. Subscription £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.L.S.C.

(CONTENTS OF VOL. XIV No. 4, DECEMBER 1961)

Pasture Studies in Uttar Pradesh. I. Chemical Composition of Pastures of Braja Bhoomi. V. S. SHRIVASTAVA and S. K. TALAPATRA.

Inheritance of Some Economic Characters in Hariana Cattle. III. Milk Yield. SUKH BIR SINGH and R. N. DESAI.

Inheritance of Some Economic Characters in Hariana Cattle. IV. Lactation Period. SUKH BIR SINGH and R. N. DESAI.

Studies of Some Economic Characters in Relation to Age at First Calving in Hariana Cattle. M. L. KOHLI, K. R. SURI, V. K. BHATNAGAR and K. L. LOHIA.

Effect of the Season of Calving on the Milk Yield, Peak Yield and Lactation Period in Hariana Cattle. MAHESH DUTT and SUKH BIR SINGH.

Guja Guizotia abyssinica compositae Cake as a Cattle Feed. G. R. P. GUPTA and S. S. NEGI. Electrical Conductivity of Cow and Buffalo Milk. R. N. PAL.

Inhibition of Micro-Organisms by Cow and Buffalo Milk. A. M. NATARAJAN and A. T. DUDANI.

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. 0d.

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

THE MILK FAT GLOBULE MEMBRANE by N. KING

Cloth bound 99 pp. Price 15s. 0d.

MILK AND BUTTERFAT RECORDING by E. D. ASHTON

Cloth bound 205 pp. Illustrated Price 30s. 0d.

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. 31, No. 3

Contents

June 1963

- H. G. BOMAN and K. G. ERIKSSON. Penicillin induced lysis in *Escherichia coli*.
- C. H. CLARKE. Suppression by methionine of reversions to adenine independence in *Schizosaccharomyces pombe*.
- R. MACPHERSON and J. D. A. MILLER. Nutritional studies on *Desulfovibrio desulfuricans* using chemically defined media.
- W. E. VAN HEYNINGEN. The fixation of tetanus toxin, strychnine, serotonin and other substances by ganglioside.
- W. E. VAN HEYNINGEN and R. J. WOODMAN. The fixation of tetanus toxin by frog brain.
- E. C. CANTINO, J. S. LOVETT, L. V. LEAK and J. LYTHGOE. The single mitochondrion, fine structure, and germination of the spore of *Blastocladia emersonii*.
- B. A. BRIDGES. Effect of chemical modifiers on inactivation and mutation-induction by gamma radiation in *Escherichia coli*.
- R. F. ROSENBERGER and M. SHILO. Repression of inducible tartrate dehydratases in *Pseudomonas* strains.
- T. CROSS, M. P. LECHEVALIER and H. LECHEVALIER. A new genus of the Actinomycetales: *Microellobosporia* gen.nov.
- R. FULLER and L. G. M. NEWLAND. The serological groupings of three strains of *Streptococcus equinus*.
- D. E. BRADLEY. The structure of coliphages.
- M. R. KIMMITT and P. J. LE B. WILLIAMS. Systematic position of *Gluconobacter liquefaciens*.
- B. J. MARSHALL, W. G. MURRELL and W. J. SCOTT. The effect of water activity, solutes and temperature on the viability and heat resistance of freeze-dried bacterial spores.
- A. R. ABOU AKKADA and T. H. BLACKBURN. Some observations on the nitrogen metabolism of rumen proteolytic bacteria.
- G. I. BARROW. Microbial antagonism by *Staphylococcus aureus*.
- T. R. G. GRAY. Media for the enumeration and isolation of heterotrophic salt-marsh bacteria.
- L. E. HAWKER and P. McV. ABBOTT. Fine structure of the young vegetative hyphae of *Pythium debaryanum*.
- M. RANCOURT and H. A. LECHEVALIER. Electron microscopic observation of the sporangial structure of an actinomycete, *Microellobosporia flava*.

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

Four 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 2, June 1963

- O'CONNOR, L. K. and HODGES, J. Wastage and culling in dairy herds.
- GIBSON, D. and WATSON, J. H. A comparison of growth rate in twin cattle of eight breeds and crosses.
- WHITELAW, F. G. and PRESTON, T. R. The nutrition of the early-weaned calf. III. Protein solubility and amino-acid composition as factors affecting protein utilisation.
- PRESTON, T. R., WHITELAW, F. G. and MACLEOD, N. A. The Nutrition of the early-weaned calf. IV. Ruminant ammonia formation from soluble and insoluble protein sources.
- SEARLE, S. R. Herd-by-cow interaction effects in dairy production records.
- WHITE, N. and HOLMES, W. A comparison of two methods of beef production with Sussex-Ayrshire crosses.
- SMITH, W. C., ADAM, J. L. and TONKS, H. M. The supplementation pig diets with oleandomycin.
- CORBETT, J. L., LANGLANDS, J. P. and REID, G. W. Effects of season of growth and of digestibility of herbage on intake by grazing dairy cows.
- HUNTER, R. F. and DAVIES, G. E. The effect of method of rearing on the social behaviour of Scottish Blackface hoggets.
- WATSON, J. H. Inbreeding arising through artificial insemination and natural service in Welsh Black cattle.
- Proceedings of the 38th Meeting of the British Society of Animal Production.

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

JOURNAL 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.—Bacterial 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