

---

---

# 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 Dalry 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 H. F. BURGESS, M.B.E.

*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 23, each single part 25s., double parts 50s. net. Postage extra. (Volume 6, No. 2, Volume 13, Nos. 2 and 3 and Volume 14 complete are out of print.)

## CORRECTIONS

*Journal of Dairy Research* 23, 2

The Determination of Lactose in Milk

F. H. GRIMBLEBY

P. 236, for 'corrected reading = observed reading  $\times \frac{100 - (P \times 0.84 + F \times 1.07)}{100}$ '

*substitute* 'corrected reading = observed reading  $\times \frac{100 - 0.8 (P \times 0.84 + F \times 1.07)}{100}$ '

*Journal of Dairy Research* 26, 3

An Analysis of the Performance of an Ultra-High-Temperature Milk Sterilizing Plant.  
IV. Comparison of Experimental and Calculated Sporicidal  
Effects for a Strain of *Bacillus stearothermophilus*

H. BURTON, J. G. FRANKLIN, D. J. WILLIAMS, HELEN R. CHAPMAN,  
A. JEAN, W. HARRISON AND L. F. L. CLEGG

P. 221, delete comma after 'JEAN' in list of authors at head of paper.

# 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 net per volume (post free): single numbers, 12s. 6d. 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 7s. 6d.

## CONTENTS OF THE OCTOBER ISSUE

- Impressions of the XV International Dairy Congress
- XV International Dairy Congress—Meeting of Sections
- XV International Dairy Congress—Congress Publications

## General Meeting (May)

The Work of the International Dairy Federation, by P. KAESTLI

Some Aspects of Dairying in Underdeveloped Countries, by H. D. KAY

## General Meeting (July)

Milk Production from Grassland, by J. D. IVINS  
The Stilton Cheese Industry, by R. SCOTT

## Tours

Norfolk County Council Clean Bottle Campaign, by N. B. ASHWORTH

The Chemical Sterilization of Dairy Equipment, by J. W. EGDELL

Some Experiences in the Disposal of Milk Wastes, by D. K. SILVESTER

## Obituary

## Personalia

## Appointment

## Section Notes

Report on the Second Intake of Men for the Dairy Technology Course at Reaseheath

*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 COUGH 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: K. C. Sen, D.Sc., F.N.I.

### CONTENTS OF VOL. XI, No. 3, SEPTEMBER 1958

*Tocopherol and Carotene Contents of Green Fodder.* R. A. RAMANUJAN and C. P. ANANTAKRISHNAN.

*Environmental and Hereditary Causes of Variation in Length of Gestation of Tharparkar Cows.* O. N. SINGH, B. D. SINHA and B. P. S. R. SINGH.

*Environmental Factors Affecting Milk Production in Egyptian Cows.* A. A. ASKER, A. A. EL-ITRIBY and (MISS) L. H. BEDEIR.

*Phosphorus and Citric Acid Contents of Egyptian Milk.* M. K. BALBA, A. M. EL-NEGOMY and M. SAFWAT MOHAMMED.

*Studies on the Utilisation of Riboflavin, Nicotinic Acid and Biotin by Some Lactobacilli.* V. K. N. NAM-BUDRIPAD, H. LAXMINARAYANA and K. K. IYA.

*Studies on Kishk Microflora.* G. M. EL-SADEK and S. A. Z. MAHMOUD.

### CONTENTS OF VOL. XI, No. 4, DECEMBER 1958

*The Effect of Manurial Treatments on the Yield and Composition of Berseem.* S. P. SRIVASTAVA, J. S. SAXENA and G. S. SINGH.

*Influence of the Season of Calving on Inter-Calving Period in Murrah Buffaloes and Haryana Cows.* R. B. SINGH, S. C. SHARMA and SARTAJ SINGH.

*An Analysis of the Components of Variance in Post-Partum Interval to Conception in a Tharparkar Herd of Cattle.* R. B. PRASAD.

*Yield and Composition of Colostral Milk of Kankrej Cows (Fat, Total Solids and Proteins).* P. S. PATEL and B. M. PATEL.

*The Effect of Adding Sodium Chloride on the Cationic Exchange in Milk.* HASSAN A. SHARARA.

*Stability of Tocopherol in Fats during Storage and Heating.* R. A. RAMANUJAM and C. P. ANANTAKRISHNAN.

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 70s. od.*

Technical Communications Nos. 2 and 3 have recently been prepared, 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. 22 No. 2

Contents

April 1960

- BERENBAUM, M. C., UNGAR, J. and STEVENS, W. K. Intracranial infection of mice with *Bordetella pertussis*.
- HARTMAN, P. E., LOPER, J. C. and SERMAN, D. Fine structure mapping by complete transduction between histidine-requiring *Salmonella* mutants.
- HARTMAN, P. E., HARTMAN, Z. and SERMAN, D. Complementation-mapping by abortive transduction of histidine-requiring *Salmonella* mutants.
- AMES, B. N., GARRY, B. and HERZENBERG, L. A. The genetic control of the enzymes of histidine biosynthesis in *Salmonella typhimurium*.
- BRADISH, C. J., HENDERSON, W. M. and KIRKHAM, J. B. Studies on the virus system of foot and mouth disease: separation of components and electron microscopy of the characteristic particle.
- BRADISH, C. J., BROOKSBY, J. B. and TSUBAHARA, H. Studies of components of the virus system of foot and mouth disease and its antibodies.
- BRADISH, C. J. and BROOKSBY, J. B. The specificity of the interactions between components of the virus system of foot and mouth disease and its antibodies.
- FULTON, F. Tissue culture on polythene.
- COLEMAN, G. S. A sulphate-reducing bacterium from the sheep rumen.
- GORRILL, R. H. and MCNEIL, E. The effect of cold diluent on the viable count of *Pseudomonas pyocyanea*.
- REES, R. J. W., VALENTINE, R. C. and WONG, P. C. BA . . . . . from the human mouth.
- BUTLER, M. and KNIGHT, B. C. J. G. The survival of washed suspensions of mycoplasma.
- BUTLER, M. and KNIGHT, B. C. J. G. The measurement of the growth of mycoplasma in liquid media.
- BUTLER, M. and KNIGHT, B. C. J. G. Steroid growth requirements and steroid growth inhibitors of mycoplasma.
- RAZIN, S. and KNIGHT, B. C. J. G. A partially defined medium for the growth of mycoplasma.
- RAZIN, S. and KNIGHT, B. C. J. G. The effects of ribonucleic acid and deoxyribonucleic acid on the growth of mycoplasma.
- HARADA, T. and SPENCER, B. Choline sulphate in fungi.
- SHOESMITH, J. G. The measurement of bacterial motility.
- BISSET, K. A. and HALE, C. M. F. Flagellar pattern and growth of *Bacillus* spp.
- SKINNER, F. A. The isolation of anaerobic cellulose-decomposing bacteria from soil.
- COLEMAN, G. S. The cultivation of sheep rumen oligotrich protozoa *in vitro*.
- MORRIS, J. G. Studies on the metabolism of *Arthrobacter globiformis*.
- STRICKLAND, W. N. A rapid method for obtaining unordered *Neurospora* tetrads.

*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

---

# ANIMAL PRODUCTION

## JOURNAL OF THE BRITISH SOCIETY OF ANIMAL PRODUCTION

Contents of Volume 1, Part 2, September 1959

- BODWELL, C. E., HARRINGTON, G. and POMEROY, R. W. Measurement of eye muscle area in beef carcasses.  
CRICHTON, J. A., AITKEN, J. N. and BOYNE, A. W. Effect of plane of nutrition during rearing on growth, production, reproduction and health of dairy cattle. I. Growth to 24 months.  
DODSWORTH, T. L. Feeding additional protein to fattening steers implanted with hexoestrol.  
EAST, E., TAYLOR, J., MILLER, I. T. and WIDDOWSON, R. W. Measurement of backfat thickness on live pigs by ultrasonics.  
HANCOCK, J. L. Polyspermy in pig ova.  
JOUBERT, D. M. Effect of age at which lambs are castrated on carcass weight and quality.  
KING, J. W. B. and ROBERTS, R. C. Effects of inbreeding on carcass traits in the bacon pig.  
LODGE, G. A. and MACDONALD, I. Influence of birth weight, milk consumption, and supplementary food upon the growth rates of suckling piglets.  
NEIMANN-SØRENSEN, A. and SPRYSZAK, A. Blood group studies on cattle of the Red Polish breed.  
PRESTON, T. R., GREENHALGH, I. and MACLEOD, N. A. Effect of hexoestrol implants on suckling and weaned lambs.  
PURSER, A. F. and ROBERTS, R. C. Hogg weight and subsequent performance of Scottish Blackface ewes.  
ROBERTSON, ALAN. A simple method of pedigree evaluation in dairy cattle.  
SMITH, C. Comparing testing schemes in pigs.

This new journal is a continuation and expansion of *The Proceedings of the British Society of Animal Production* (1951-8) and will appear initially twice a year in March and September.

The annual subscription (two parts) is 30s. (\$5.00 in U.S.A. and CANADA), single parts 17s. 6d. (U.S.A. and CANADA \$2.75) net. Orders and subscriptions should be sent to:

**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 C. A. E. BRIGGS, PH.D.

Contents of Vol. 22, No. 1, 1959

### ORIGINAL PAPERS

Effect of nisin on the growth of cells and spores of *Clostridium welchii* in gelatine—Sterilization of penicillin by gamma-radiation—Mycological synthesis of fat from whey. I. Preliminary studies with stationary cultures—Study of a gram-positive coccus responsible for ropiness and viscosity in malt wort—Coli-aerogenes bacteria in farm water supplies—Bacterial content of farm dairy equipment—Microbiological examination of butter—Cold-tolerant fermentative Gram-negative organisms from meat and other sources—Some observations on bactericidal paint films—Sanitation of fish boxes. I. The quantitative and qualitative bacteriology of commercial

wooden fish boxes—Study of the bacteria associated with the roots of subterranean clover and Wimmera rye-grass—Influence of environmental factors on the microbicidal effect of ionizing radiations—Observations on the isolation of Salmonellae from Selenite broth—Effect of freezing and storage on the bacterial flora of pasteurized milk—Occurrence of *Bacillus cereus* in milk and on dairy equipment—Investment value of continuous culture—Value of the Association Escherichiae-Group D streptococci in the diagnosis of contamination in foods—Physical aspects of sterilizing cotton articles by steam.

One volume usually of two numbers published annually

Price to non-members: 35/- per number

Publications Manager: A. H. WALTERS, Deosan Group  
42 Weymouth Street, London, W. 1

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