
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. 12s. net per volume (post free): single numbers, 15s. 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 10s.

CONTENTS OF THE APRIL ISSUE

General Meeting

Scientific and Technical Aspects of the German Dairy Industry, by Prof. M. E. SCHULZ

Subject: Current Legal Problems in the Dairy Industry

Legal Aspects, by P. O'NEILL

Technical Aspects, by J. G. DAVIS

British Standard

Swiss Study Tour, 1965, by R. SCOTT

A Study of the Variability of the Composition of Mixed Herd Milks, by R. A. EDWARDS and E. DONALDSON

Obituaries

Milk and Milk Products Technical Advisory Committee

Book Reviews

The New Cheese Regulations, by J. G. DAVIS

Questionnaire on the Society's Journal, by F. C. WHITE

Section Notes

CONTENTS OF THE JULY ISSUE

General Meeting

Subject: The Milk Quality Control Schemes: Hygienic Aspects

England and Wales, by D. I. JENKINS

Scotland, by I. A. McALPINE

Northern Ireland, by G. CHAMBERS and J. G. MURRAY

A Producer's View, by T. B. BODEN

A Processor's View, by R. C. WRIGHT

Personalia

Developments in Dairy Equipment, by A. GRAHAM ENOCK

Ten-day Study Tour of the Dutch Dairy Industry, by W. ATKINSON

Circulation Cleaning of Pipeline Milking Machines in Parlours: The Value of a Pre-milking Chlorinated Rinse, by MARJORIE S. MIDDLETON, J. J. PANES, DORINE R. WIDDAS and G. WILLIAMS

Correspondence

The Swedish Study Tour, 1964, by T. FOLEY

The Accuracy of Milk Meters, by J. B. HOYLE

Book Reviews

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

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 110s. to subscribers in the Commonwealth and the Republic of Ireland, whose Governments contribute to the Commonwealth Agricultural Bureaux

210s. to subscribers in non-contributing countries

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 · BUCKS · ENGLAND

JOURNAL OF DAIRY SCIENCE

Official Publication of the American Dairy Science Association Since 1917

PRESIDENT, F. E. NELSON

University of Arizona, Tucson

EDITOR-IN-CHIEF, E. O. HERREID

Station A Box 250 Champaign, Illinois

TREASURER, C. J. CRUSE

Box 327 Monticello, Illinois

VOL. 48

AUGUST 1965

No. 8

Representative Research Papers with Shortened Titles:

Flocculation of sterile milk. A. LEVITON

Genetic polymorphism in caseins. W. G. GORDON

Specific gravity determinations. J. W. STULL

Dye reduction test for milk. W. S. LA GRANGE

Radiostrontium in milk. B. KAHN

Milk fat depression. N. A. JORGENSON

Ruminal parakeratosis. R. G. HINDERS

Metabolism of acetate. J. W. YOUNG

Combining abilities of sires. F. R. ALLAIRE

Radio telemetry techniques. K. R. SIMMONS

ANIMAL PRODUCTION

JOURNAL OF THE BRITISH SOCIETY OF ANIMAL PRODUCTION

Contents of Volume 8, Part 3, October 1966 include:

- JONES, MADDEVER, COURT and PHILLIPS. The time taken by cows to eat concentrates.
- BICHARD and COOPER. Analysis of production records from a lowland sheep flock. I.
- MOAV. Specialised sire and dam lines. III. Choice of the most profitable parental combination.
- MOAV and HILL. Specialised sire and dam lines. IV. Selection within lines.
- BROADBENT and WATSON. Factors governing the shape of the growth curve of Suffolk × Welsh lambs.
- WIESER, PRESTON and MACDEARMID. Intensive beef production. 8. The effect of chlortetracycline on barley beef cattle.
- HINKS. Selection practices in dairy herds. I and II.
- DOORNENBAL and MARTIN. The association between commercial cut-out yield and gross chemical composition in market pigs.
- LODGE, ELSLEY and MACPHERSON. The effects of level of feeding of sows during pregnancy. II.
- ELSLEY, ANDERSON, McDONALD, MACPHERSON and SMART. A comparison of the live-weight changes, nitrogen retention and carcass composition of pregnant and non-pregnant gilts.
- SLEE. Variation in the responses of shorn sheep to cold exposure.
- HUNTER. The effect of superovulation on fertilisation and embryonic survival in the pig.

This Journal is published three times a year, but COMMENCING 1967 WILL BE PUBLISHED QUARTERLY IN FEBRUARY, MAY, AUGUST and NOVEMBER.

The 1966 annual subscription rate is 65s. (U.S.A. \$11.00) single copy 25s. (U.S.A. \$4.00). COMMENCING 1967 THE SUBSCRIPTION RATE WILL BE 90s. (U.S.A. \$14.00). Orders and subscriptions may be sent to any bookseller or direct to:

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

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.I.S.C.

(CONTENTS OF VOL. XVIII, No. 1, MARCH 1965)

Electrophoretic Pattern and N-Terminal Amino-Acids of Caseins from Cow and Buffalo Milks After Trypsin Action. O. P. SINGHAL and N. C. GANGULI.

Studies on Microbiological Deterioration of *Khoa*. K. ATMARAM NAIDU and B. RANGANATHAN.

A Modified Gerber Procedure for Determination of Fat in Ice-Cream. I. S. VERMA and B. M. L. GARG.

Growth Studies on Indian Breeds of Cattle. I. Studies on the Growth of Tharparkar Cattle. V. D. MUDGAL and S. N. RAY.

Studies on the Nutrients Required for Growth. I. Effect of Feeding Different Levels of Protein on the Growth of Sahiwal Calves. V. D. MUDGAL and S. N. RAY.

A Titrimetric Method for the Estimation of Solids-Not-Fat in Milk. D. SETHU RAO, C. S. SUDHEENDRANATH, S. KRISHNA RAO, M. BHIMASENA RAO and C. P. ANANTAKRISHNAN.

The Performance of the Dairy Herds at the National Dairy Research Institute, Karnal. D. SUNDARESAN, S. N. RAY and K. K. IYA.

Frequency of Milking and Milk Production. D. SUNDARESAN and S. P. SIDHU.

The Journal of General Microbiology

Editors

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

Vol. 45, No. 1. October 1966

CONTENTS

- J. R. POSTGATE. Kenneth Rupert Butlin: obituary notice.
- M. PAMELA SCARR and D. ROSE. Study of osmophilic yeasts producing invertase.
- SHEILA M. ROBB. Reactions of fungi to exposure to 10 atmospheres pressure of oxygen.
- B. J. HARRINGTON. A numerical taxonomical study of some corynebacteria and related organisms.
- R. LAHOZ, F. REYES and R. BELTRÁ. Some chemical changes in the mycelium of *Aspergillus flavus* during autolysis.
- M. H. RICHMOND. The genetic constitution of certain penicillinase micro-mutants in *Staphylococcus aureus*.
- J. SCHELL and S. W. GLOVER. The effect of heat on host-controlled restriction of phage λ in *Escherichia coli* K (P1).
- C. V. HENRIKSON and P. F. SMITH. Growth response of mycoplasma to carotenoid pigments and carotenoid intermediates.
- D. E. BRADLEY. The structure and infective process of a *Pseudomonas aeruginosa* bacteriophage containing ribonucleic acid.
- N. E. GILLIES. Restoration of 5-bromouracil-sensitized *Escherichia coli* strain B after exposure to ionizing or ultraviolet radiation.
- L. ZUBRZYCKI, J. GREEN and E. H. SPAULDING. A generalized transducing phage for a female *Escherichia coli* O4.
- H. J. WERNER and G. D. LINDBERG. Electron microscope observations of *Helminthosporium victoriae*.
- F. LOPEZ-BELMONTE, I. GARCIA ACHA and J. R. VILLANUEVA. Observations on the protoplasts of *Fusarium culmorum* and on their fusion.
- D. W. TEMPEST, J. W. DICKS and J. R. HUNTER. The interrelationship between potassium, magnesium and phosphorus in potassium-limited chemostat cultures of *Aerobacter aerogenes*.
- D. K. KIDBY and D. J. GOODCHILD. Host influence on the ultrastructure of root nodules of *Lupinus luteus* and *Ornithopus salivus*.
- JUNE D. ALMEIDA, F. HIMMELWEIT and A. ISAACS. Studies on the intracellular haemagglutinin component of fowl plague virus and other myxoviruses.

The subscription rate is £5. net per volume of three parts.
Single parts 45s. 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

The Journal of Applied Bacteriology

Edited by
G. Sykes
and F. A. Skinner

The Journal of Applied Bacteriology (previously known as the proceedings of the Society for Applied Bacteriology) is published for the Society to advance the study of microbiology, particularly bacteriology, in its application to industry.

Long established as an international medium for original papers embracing the many aspects of applied bacteriology the Journal serves the widening interests of microbiologists in all fields of research.

The Journal is published three times a year (comprising one volume) in April, August and December.

The Editors are ready to consider for publication papers appearing on all aspects of applied microbiology. Review articles may also be accepted.

Papers submitted for consideration should be addressed to:

G. Sykes,
Microbiology Division,
Boots Pure Drug Co. Ltd.,
Pennyfoot Street,
Nottingham, England

SUBSCRIPTIONS

Vol. 29, 1966 126s./\$18.00 per annum.
Postage outside England 3s. per year.
Certain back volumes are obtainable from the publishers. All enquiries regarding subscriptions/advertisements should be addressed to the publishers.

Published by

ACADEMIC PRESS
LONDON and NEW YORK



Berkeley Square House,
Berkeley Square,
London, W. 1

JOURNAL OF DAIRY RESEARCH

EDITED BY

L. A. MABBITT, B.Sc., Ph.D.
National Institute for Research in Dairying,
Shinfield, Reading, Berkshire

J. A. B. SMITH, C.B.E. Ph.D., D.Sc.
Hannah Dairy Research Institute, Ayr, Scotland

ASSISTED BY

PROF. L. F. L. CLEGG, (Canada))
SIR DAVID CUTHBERTSON, C.B.E., F.R.S.E., (Troon)
DR F. H. DODD, (Reading)
DR H. DONALD, F.R.S.E., (Edinburgh)
PROF. P. J. FOURIE, (South Africa)
DR T. GIBSON, (Edinburgh)
DR J. O. IRWIN, (London)
MR G. LOFTUS HILLS, (Australia)
DR W. A. MCGILLIVRAY, (New Zealand)
DR A. ROBERTSON, O.B.E., F.R.S., (Edinburgh)
DR K. C. SEN, (India)
DR C. C. THIEL, (Reading)
DR R. WAITE, (Ayr)
DR J. C. D. WHITE, (Ayr)

VOLUME 33, 1966

CAMBRIDGE UNIVERSITY PRESS

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

Secretary

J. C. F. COLES

Editorial Assistant

MRS DOROTHY SKIDMORE

Printed in Great Britain at the University Printing House, Cambridge

Contents

No. 1 (February 1966)

ORIGINALS ARTICLES	PAGE
The effect of concentrates on the voluntary intake of roughages by cows. R. C. CAMPLING and J. C. MURDOCH	1
The effect of concentrates on the rate of disappearance of digesta from the alimentary tract of cows given hay. R. C. CAMPLING	13
Greenish discoloration of butterfat during an extended period of cold storage. H. LÜCK	25
n-Alkan-1-ols in oxidized butter. W. STARK and D. A. FORSS	31
Lactose in the blood and urine of cows. J. V. WHEELLOCK and J. A. F. ROOK	37
The effect of mammary gland denervation on the fatty acid composition of goat's milk. P. F. V. WARD and N. S. HUSKISSON	43
Determination of leucocyte concentrations in cow's milk with a Coulter counter. L. W. PHIPPS and F. H. S. NEWBOULD	51
A note on the estimation of D(-) lactic acid using lactic dehydrogenase. ELLEN I. GARVIE	65
The stability of milk protein to heat. I. Subjective measurement of heat stability of milk. D. T. DAVIES and J. C. D. WHITE	67
The stability of milk protein to heat. II. Effect on heat stability of ageing milk at different temperatures. D. T. DAVIES and J. C. D. WHITE	83
The stability of milk protein to heat. III. Objective measurement of heat stability of milk. J. C. D. WHITE and D. T. DAVIES	93
REVIEWS OF THE PROGRESS OF DAIRY SCIENCE. Section F. Milk-borne disease. J. H. MCCOY	103

No. 2 (June) 1966

ORIGINAL ARTICLES	
The effect of feeding dried sugar-beet pulp on the intake and production of dairy cows. M. E. CASTLE, A. D. DRYSDALE and J. N. WATSON	123
Serological differentiation of cow's, buffalo's, goat's and sheep's milks. F. C. PINTO	129
A preliminary investigation of the importance of clostridia in the production of rancid flavour in Cheddar cheese. A. V. GOUDKOV and M. ELISABETH SHARPE	139
The para-caseinate-phosphate complex of washed rennet curd: its composition and its decomposition by water, sodium chloride solutions, and lactic acid solutions. E. R. LING	151

	PAGE
The effect of varying the interval between milkings on milk secretion. J. V. WHEELOCK, J. A. F. ROOK, F. H. DODD and T. K. GRIFFIN	161
Mechanics of machine milking. II. The flow-rate pattern within single pulsation cycles. C. C. THIEL, P. A. CLOUGH, D. R. WESTGARTH and D. N. AKAM	177
The variation in the cell count of cow's milk throughout lactation and from one lactation to the next. P. S. BLACKBURN	193
The effect of bacterial infections of the udder on the yield and composition of cow's milk. J. V. WHEELOCK, J. A. F. ROOK, F. K. NEAVE and F. H. DODD	199
Effect of dilution, freezing and thawing, and drying on the dispersibility of isolated fat membrane. H. C. CHIEN, T. RICHARDSON and C. H. AMUNDSON	217
A reduction in milk yield associated with certain half-udder milking techniques. M. MORAG	223
REVIEWS OF THE PROGRESS OF DAIRY SCIENCE. Section D. Dairy chemistry. The formation and metabolism of methyl ketones. J. C. HAWKE	225
No. 3 (October 1966)	
ORIGINAL ARTICLES	
Studies on the effect of heat treatment during processing on the viscosity and stability of high-fat market cream. J. ROTHWELL	245
The component fatty acids of the colostrum fat and milk fat of the sow. W. R. H. DUNCAN and G. A. GARTON	255
The distribution and characters of coagulase-negative staphylococci of the bovine udder. S. J. EDWARDS and G. W. JONES	261
Examination of an antibiotic produced by coagulase-negative staphylococci isolated from the bovine udder. G. W. JONES and S. J. EDWARDS	271
Partition of casein between polymer phases. N. J. BERRIDGE and D. L. SUETT	277
The induction of ketosis in the lactating dairy cow. K. G. HIBBITT	291
Identification of compounds causing symbiotic growth of <i>Streptococcus thermophilus</i> and <i>Lactobacillus bulgaricus</i> in milk. EMMA S. BAUTISTA, R. S. DAHIYA and M. L. SPECK	299
The transfer of <i>N</i> -acetyl-4-aminoantipyrine and of thiocyanate from blood to milk. J. V. WHEELOCK and J. A. F. ROOK	309
A comparison between a hot-wire laboratory apparatus and a plate heat exchanger for determining the sensitivity of milk to deposit formation. H. BURTON	317
Pediococci in Cheddar cheese. T. F. FRYER and M. ELISABETH SHARPE	325
Phytanic acid and other branched-chain fatty acid constituents of bovine rumen bacteria. R. P. HANSEN	333
REVIEWS OF THE PROGRESS OF DAIRY SCIENCE. Section B. Recent developments affecting the Cheddar cheesemaking process. P. S. ROBERTSON	343

Index of Subjects

- Adulteration**, milk, differentiation of milk species, 129
- Antibiotic**, from coagulase-negative staphylococci, 271
- Bacteria**, rumen, 3,7,11,15-tetramethylhexanoic acid production, 333
- Barley straw**, voluntary intake, when concentrates given, 1
- Butter**, from oxidized cream, identification of n-alkan-1-ols, 31
- Carotene**, chemical change, butterfat, cold storage, 25
- Casein**, structure, partition between polymer phases, 277
- Cheddar cheese**, manufacture (review), 343
Pedococcus cerevisiae content, 325
 rancid flavour, *Clostridium tyrobutyricum* content, 139
- Cheesemaking**, Cheddar, aseptic *vs.* non-aseptic process, 139
 review, 343
- Chloride**, content, milk, transfer of chemicals from blood, relationship, 309
- Clostridium tyrobutyricum***, content, Cheddar cheese, rancid flavour, 139
- Coagulation**, milk protein, heat, measurement, 67, 83, 93
- Cold storage**, butterfat, greenish discoloration, 25
- Colostrum**, fat, fatty acids, analysis, sows, 255
- Concentrates**, supplement, hay, rate of disappearance of digesta, 13
 voluntary intake, roughages, 1
- Cream**, viscosity, stability, heat treatment, processing, 245
- Dairy products**, *see also individual products*
 methyl ketones, formation and metabolism (review), 225
- Diet**, high protein, induced ketosis, cows, 291
- Diseases**, *see also Ketosis, Mastitis*
 milk-borne (review), 103
- Dry butterfat**, cold storage, greenish discoloration, 25
- Fatty acids**, colostrum-, milk-fat, sows, analysis, 255
 composition, milk, goat, denervated mammary gland, 43
 3,7,11,15-tetramethylhexanoic acid production, rumen bacteria, 333
- Feeding**, sugar-beet pulp, milk yield and composition, 123
- Flavour**, milk, cows fed sugar-beet pulp, 123
 rancid, Cheddar cheese, 139
- Goat**, milk, yield and fatty acid composition, denervated mammary gland, 43
- Hay**, supplemented with concentrates, rate of disappearance of digesta, 13
 voluntary intake, 1, 13
- Heat stability**, milk protein, measurement, 67, 83, 93
- Heat treatment**, cream, processing, viscosity, stability, 245
 milk, deposits, measurement, methods, comparison, 317
- Ketosis**, induced, cows, 291
- Lactation**, *see also Milk secretion*
 lactose content, blood, urine, 37
 stage, induced ketosis, 291
 milk composition, 309
 number, milk, cell counts, 193
- Lactic acid bacteria**, D(-) lactic acid production, estimation, 65
- D(-) Lactic acid**, estimation, using lactic dehydrogenase, 65
- Lactobacillus bulgaricus***, *Str. thermophilus*, symbiosis, yoghurt, 299
- Lactose**, content, blood, urine, lactating cows, 37
- Lactosuria**, pregnant cows, 37
- Leucocytes**, number, milk, determination, Coulter counter, 51
- Light**, storage, milk, heat stability, 83
- Mammary gland**, *see also Udder*
 denervated, goat, milk, yield and fatty acid composition, 43
- Mastitis**, subclinical, milk, cell counts, 193
- Methyl ketones**, formation and metabolism (review), 225
- Milk**, cell counts, throughout lactation, for 7 lactations, 193
 cow, buffalo, goat, sheep, serological differentiation, 129
 leucocytes, number, determination, Coulter counter, 51
- Milk-borne diseases** (review), 103
- Milk composition**, *N*-acetyl-4-aminoantipyrine, urea, thiocyanate, thiosulphate, from blood, 309
 bacterial infection, udder, 199
 colloidal complex, para-caseinate-phosphate complex, rennet curd, 151
 feeding, sugar-beet pulp, 123
 milking interval, 161
- Milk deposits**, on heat treatment, measurement, methods, comparison, 317
- Milk fat**, content, milk, feeding sugar-beet pulp, 123
 goat, denervated mammary gland, 43
 dry, *see Dry butterfat*
 fatty acids, analysis, sows, 255
 composition, denervated mammary gland, goat, 43

- Milk fat**, globule membrane, dispersibility, effects of drying, dilution, freezing, thawing, 217
- Milk protein**, heat stability, measurement, 67, 83, 93
- Milk secretion**, *see also* Lactation
rate, milking interval, 161
- Milk yield**, bacterial infection, udder, 199
feeding, sugar-beet pulp, 123
half-udder milking technique, 223
goat, denervated mammary gland, 43
milking interval, 161
- Milking**, interval, lactose content, blood, urine, 37
milk yield and composition, 161
technique, half-udder, milk yield, 223
- Milking machines**, milk-flow rate, within single pulsation cycles, 177
- Pediococcus cerevisiae***, content, Cheddar cheese, 325
- Pigs**, colostrum-, milk-fat, fatty acids, analysis, 255
- Rennet curd**, para-caseinate-phosphate complex, 151
- Roughages**, voluntary intake, when concentrates given, 1
- Rumen**, bacteria, 3,7,11,15-tetramethylhexanoic acid production, 333
- Serology**, differentiation, milk, cow, buffalo, goat, sheep, 129
- Silage**, voluntary intake, when concentrates given, 1
- Solids-not-fat**, content, milk, feeding sugar-beet pulp, 123
- Staphylococci**, coagulase-negative, udder, antibiotic from, 271
distribution, characters, 261
coagulase-positive, subclinical mastitis, cell counts, milk, 193
- Staphylococcus pyogenes***, infection, udder, milk yield and composition, 199
- Starters**, yoghurt, *Str. thermophilus*, *L. bulgaricus*, symbiosis, 299
- Storage**, *see also* Cold storage
milk, different temperatures, darkness, light, heat stability, 83
- Streptococcus cremoris***, associated growth of *Pediococcus cerevisiae*, milk, 325
- Str. dysgalactiae***, infection, udder, milk yield and composition, 199
- Str. thermophilus***, *L. bulgaricus*, symbiosis, yoghurt, 299
- Sugar-beet pulp**, supplement, silage and concentrates, milk yield and composition, 123
- Temperature**, storage, milk, heat stability, 83
- Thyroxine**, injected, induced ketosis, cows, 291
- Udder**, blood, milk, transfer of chemicals, 309
staphylococci, coagulase-negative, antibiotic from, 271
distribution, characters, 261
Staph. pyogenes, *Str. dysgalactiae*, milk yield and composition, 199
- Urine**, lactose content, lactating cows, 37
- Yoghurt**, starters, *Str. thermophilus*, *L. bulgaricus*, symbiosis, 299

Index of Authors

- AKAM, D. N., 177
AMUNDSON, C. H., 217
- BAUTISTA, EMMA S., 299
BERRIDGE, N. J., 277
BLACKBURN, P. S., 193
BURTON, H., 317
- CAMPLING, R. C., 1, 13
CASTLE, M. E., 123
CHIEN, H. C., 217
CLOUGH, P. A., 177
- DAHIYA, R. S., 299
DAVIES, D. T., 67, 83, 93
DODD, F. H., 161, 199
DRYSDALE, A. D., 123
DUNCAN, W. R. H., 255
- EDWARDS, S. J., 261, 271
- FORSS, D. A., 31
FRYER, T. F., 325
- GARTON, G. A., 255
GARVIE, ELLEN I., 65
GOUDKOV, A. V., 139
GRIFFIN, T. K., 161
- HANSEN, R. P., 333
HAWKE, J. C., 225
HIBBITT, K. G., 291
HUSKISSON, N. S., 43
- JONES, G. W., 261, 271
- LING, E. R., 151
LÜCK, H., 25
- MCCOY, J. H., 103
MORAG, M., 223
MURDOCH, J. C., 1
- NEAVE, F. K., 199
NEWBOULD, F. H. S., 51
- PHIPPS, L. W., 51

Index of Authors

vii

PINTO, F. C., 129

RICHARDSON, T., 217

ROBERTSON, P. S., 343

ROOK, J. A. F., 37, 161, 199, 309

ROTHWELL, J., 245

SHARPE, M. ELISABETH, 139, 325

SPECK, M. L., 299

STARK, W., 31

SUETT, D. L., 277

THIEL, C. C., 177

WARD, P. F. V., 43

WATSON, J. N., 123

WESTGARTH, D. R., 177

WHEELOCK, J. V., 37, 161, 199, 309

WHITE, J. C. D., 67, 83, 93

DIRECTIONS TO CONTRIBUTORS

GENERAL

The onus of preparing a paper in a form suitable for publication in the *Journal of Dairy Research* lies in the first place with the author. In their own interests authors are strongly advised to follow these directions carefully and to consult a current issue for guidance on details of layout and use of headings.

Typescripts may be sent to the Editors at any time, and submission of a paper will be held to imply that it reports unpublished original work which is not under consideration for publication elsewhere.

FORM OF PAPERS

Papers should be typed with double spacing, and the title followed by the names and initials of the authors, women supplying one Christian name. The name and postal address of the laboratory must be stated.

Papers should be divided into the following parts in the order indicated: (a) Summary, brief and self-contained; (b) Introductory paragraphs, briefly explaining the object of the work but without giving an extensive account of the literature; (c) Experimental or Methods; (d) Results; (e) Discussion and Conclusions; (f) Acknowledgements without a heading; (g) References. Only with some exceptional types of material will headings different from (c), (d) and (e) be necessary.

The spelling adopted is that of the *Shorter Oxford English Dictionary*. Underlining should be used only to indicate italics. Every effort should be made to avoid the use of footnotes. Proper nouns, including trade names, should be given a capital initial letter.

TABLES

Each table should be numbered and should have a heading that enables its contents to be understood without reference to the text. Tables must be typed on separate sheets and their approximate positions indicated in the text.

ILLUSTRATIONS

Line drawings, which must be originals, should be numbered as Figures and photographs as Plates, in Arabic numerals. Drawings should be in indian ink, on Bristol board or cartridge paper. However, a technique which may be more convenient to authors is to use a double-sized piece of tracing paper, or translucent graph paper faintly lined in blue or grey, folded down the centre with the drawing on one half and the other acting as a flyleaf.

Attached to every figure and plate there should be a translucent flyleaf cover on the outside of which should be written legibly: (a) title of paper and name of author; (b) figure or plate number and explanatory legend; (c) the figures and lettering, which is intended to appear on the finished block, in the correct position relative to the drawing underneath. For each paper there should also be a separate typed sheet listing figure and plate numbers with their legends, and the approximate position of illustrations should be indicated in the text.

As a rule the photographs and diagrams should be about twice the size of the finished block and not larger over-all than the sheets on which the paper itself is typed. For general guidance in preparing diagrams, it is suggested that for a figure measuring 9 in. × 6 in. all lines, axes and curves, should have a thickness of 0.4 mm, thus —. Graph symbols in order of preference should be ○ ●, △ ▲, □ ■, × +, and for a 9 in. × 6 in. graph the open circles should be $\frac{1}{2}$ in. in diameter. The open triangles should be large enough to contain circles $\frac{3}{8}$ in. diameter and the open squares circles of $\frac{1}{2}$ in. diameter. The crosses should have lines $\frac{1}{2}$ in. long. The block symbols should be slightly smaller than the corresponding open symbols. Scale marks on the axes should be on the inner side of each axis and should be $\frac{1}{2}$ in. long.

REFERENCES

In the text references should be quoted by whichever of the following ways is appropriate: Arnold & Barnard (1900); Arnold & Barnard (1900a); Arnold & Barnard (1900a, b); (Arnold & Barnard, 1900). Where there are more than two authors all the surnames should be quoted at the first mention, but in subsequent citations only the first surname should be given thus, Brown *et al.* (1901). If there are six or more names *et al.* should be used in the first instance. Also, if the combinations of names are similar the names should be repeated each time, e.g. Brown, Smith & Allen (1954); Brown, Allen & Smith (1954).

References should be listed alphabetically at the end of the paper, title of journals being abbreviated as in the *World List of Scientific Periodicals*. Authors' initials should be included, and each reference should be punctuated in the typescript thus: Arnold, T. B., Barnard, R. N. & Compound, P. J. (1900). *J. Dairy Res.* 18, 158. References to books should include name of author, year of publication, title, town of publication and name of publisher in that order, thus, Arnold, T. B. (1900). *Dairying*. London: Brown and Chester.

It is the duty of the author to check all references and to ensure that the correct abbreviations are used.

SYMBOLS AND ABBREVIATIONS

The symbols and abbreviations used are those of British Standard 1991: Part 1: 1954, *Letter Symbols, Signs and Abbreviations*.

DESCRIPTIONS OF SOLUTIONS

Normality and molarity should be indicated thus: N-HCl, 0.1 M-NaH₂PO₄. The term '% ' means g/100 g solution. For ml/100 ml solution write '% (v/v)' and for g/100 ml solution write '% (w/v)'.

REPRINTS

Order forms giving quotations for reprints are sent to authors with their proofs.

CONTENTS

ORIGINAL ARTICLES

- Studies on the effect of heat treatment during processing on the viscosity and stability of high-fat market cream
ROTHWELL, J. page 245
- The component fatty acids of the colostral fat and milk fat of the sow
DUNCAN, W. R. H. and GARTON, G. A. 255
- The distribution and characters of coagulase-negative staphylococci of the bovine udder
EDWARDS, S. J. and JONES, G. W. 261
- Examination of an antibiotic produced by coagulase-negative staphylococci isolated from the bovine udder
JONES, G. W. and EDWARDS, S. J. 271
- Partition of casein between polymer phases
BERRIDGE, N. J. and SUETT, D. L. 277
- The induction of ketosis in the lactating dairy cow
HIBBITT, K. G. 291
- Identification of compounds causing symbiotic growth of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* in milk
BAUTISTA, EMMA S., DAHIYA, R. S. and SPECK, M. L. 299
- The transfer of *N*-acetyl-4-aminoantipyrine and of thiocyanate from blood to milk
WHEELOCK, J. V. and ROOK, J. A. F. 309
- A comparison between a hot-wire laboratory apparatus and a plate heat exchanger for determining the sensitivity of milk to deposit formation
BURTON, H. 317
- Pediococci in Cheddar cheese
FRYER, T. F. and SHARPE, ELISABETH M. 325
- Phytanic acid and other branched-chain fatty acid constituents of bovine rumen bacteria
HANSEN, R. P. 333
- REVIEWS OF THE PROGRESS OF DAIRY SCIENCE. Section B
Recent developments affecting the Cheddar cheese-making process
ROBERTSON, P. S. 343