

	PAGE
Energy expenditure and body build in sixty 14-year-old children. By J. V. G. A. DURNIN, W. J. McLEES, S. A. YUILL, A. D. BUSBY, C. A. GAY and E. C. BLAKE	xiv
Further observations on the interaction of protein and calcium on the bones of rats. By N. R. H. EL-MARAGHI and R. J. C. STEWART .. . . .	xiv
The quantitative estimation of lipids in nervous tissue, by thin-layer chromatography. By SHEILA N. PAYNE .. . . .	xv
Cytological changes in the gastro-intestinal tract of protein-calorie deficient animals. By B. T. SQUIRES .. . . .	xvi
Starch-gel electrophoresis of serum protein of dogs: the effects of diets of differing protein value and of infection with <i>Toxocara canis</i> . By H. A. AL-RABII ..	xvii
The use of <i>Nippostrongylus muris</i> and its effect on the intestine of the rat. By R. ORRACA-TETTEH and B. S. PLATT .. . . .	xviii
Effect of dietary protein on hepatic fibrogenesis in albino rats. By U. N. BHUYAN, N. C. NAYAK, M. G. DEO and V. RAMALINGASWAMI .. . . .	xix

## INDEX OF AUTHORS

Al-Rabii, H. A. ....	iv, xvii	Hatton, B. ....	xi	Payne, P. R. ....	11, v, xiii
Beaton, G. H. ....	30	Heard, C. R. C. ....	vi, vii	Payne, S. N. ....	xv
Beveridge, J. M. R. ....	19	Holmes, W. ....	88	Platt, B. S. ....	iii, iv, vi, vii, xviii
Bhuyan, U. N. ....	xix	Jacob, M. ....	v	Quartermore, J. ....	x
Blake, E. C. ....	xiv	Jones, J. G. W. ....	88	Ramalingaswami, V. ....	xix
Blaxter, K. L. ....	3, 62	Lloyd, L. E. ....	45	Raymond, W. F. ....	54
Braithwaite, D. M. ....	i	Lodge, G. A. ....	xi	Robinson, D. W. ....	ii
Busby, A. D. ....	xiv	Macdonald, I. ....	i	Rook, J. A. F. ....	71
Campbell, J. A. ....	31	McLees, W. J. ....	xiv	Squires, B. T. ....	xvi
Campling, R. C. ....	80	Miller, D. S. ....	11, xiii	Steele, M. H. ....	xii
Deo, M. G. ....	xix	Mills, C. F. ....	38, ix, x	Stewart, R. J. C. ....	xiv
Donoso, G. ....	xiii	Munro, H. N. ....	1, xii	Suttle, N. F. ....	ix
Durnin, J. V. G. A. ....	xiv	Murdoch, J. C. ....	99	Turner, M. R. ....	vi, vii
El-Maraghi, N. R. H. ....	xiv	Naismith, D. N. ....	viii	Wadsworth, G. R. ....	i
Forbes, W. ....	xii	Nayak, N. C. ....	xix	Yuill, S. A. ....	xiv
Gay, C. A. ....	xiv	Orraca-Tetteh, R. ....	iii, xviii		

## FORTHCOMING ISSUE

It is hoped to publish in the next issue of the *Proceedings of The Nutrition Society* reports of symposia on Carbohydrates and Nutrition (14 March 1964) and Nutrition of Micro-organisms (11 April 1964) and abstracts of communications to be presented at meetings for original communications on 22 February 1964 and 22 May 1964.

# CONTENTS OF VOLUME 23, No. 1, 1964

*(All rights reserved)*

## SYMPOSIUM PROCEEDINGS

### *One Hundred and Fifty-ninth Scientific Meeting*

#### INTERRELATIONSHIPS OF NUTRIENTS

PAGE

Interrelationships of nutrients: Chairman's opening remarks. By H. N. MUNRO .....	1
Dietary factors affecting energy utilization. By K. L. BLAXTER .....	3
Dietary factors influencing nitrogen balance. By D. S. MILLER and P. R. PAYNE .....	11
Nutrient interrelationships of the fatty acids. By J. M. R. BEVERIDGE .....	19
Interrelationships of nutrients ( <i>Second Session</i> ): Chairman's opening remarks. By G. H. BEATON .....	30
Dietary factors affecting vitamin requirements. By J. A. CAMPBELL .....	31
Metabolic interrelationships in the utilization of trace elements. By C. F. MILLS .....	38
Nutrient interrelationships as they affect the formulation of balanced diets. By L. E. LLOYD .....	45

### *One Hundred and Sixty-first Scientific Meeting*

#### THE UTILIZATION OF GRASS BY RUMINANTS

The efficient use of grass. By W. F. RAYMOND .....	54
Utilization of the metabolizable energy of grass. By K. L. BLAXTER .....	62
Ruminal volatile fatty acid production in relation to animal production from grass. By J. A. F. ROOK .....	71
Factors affecting the voluntary intake of grass. By R. C. CAMPLING .....	80
The efficiency of utilization of fresh grass. By W. HOLMES and J. G. W. JONES .....	88
Some factors affecting the efficient utilization of conserved grass. By J. C. MURDOCH .....	99

#### ABSTRACTS OF COMMUNICATIONS

### *One Hundred and Sixtieth Scientific Meeting*

Haemoglobin levels among Dayaks in Sarawak. By G. R. WADSWORTH .....	i
The different lipid response in adult males to dietary starch and sucrose. By I. MACDONALD and DIANA M. BRAITHWAITE .....	i
The plane of nutrition and compensatory growth in pigs. By D. W. ROBINSON .....	ii
The effects of hookworm infestation ( <i>Nippostrongylus muris</i> ) on protein metabolism in rats. By R. ORRACA-TETTEH and B. S. PLATT .....	iii
Effect of chronic roundworm infection ( <i>Toxocara canis</i> ) on protein metabolism in dogs fed diets of different protein value. By H. A. AL-RABII and B. S. PLATT .....	iv
The effect of environmental temperature on net protein utilization and food intakes of rats. By M. JACOB and P. R. PAYNE .....	v
Diabetic-like changes in carbohydrate metabolism in dogs fed diets of suboptimal protein value. By C. R. C. HEARD, M. R. TURNER and B. S. PLATT .....	vi
The effects of mild protein-calorie deficiency on the carbohydrate metabolism of pregnant bitches and their offspring. By M. R. TURNER, C. R. C. HEARD and B. S. PLATT .....	vii
The role of the essential fatty acids in the aetiology of kwashiorkor. By D. N. NAISMITH .....	viii
Interactions between copper, zinc and iron and their relationship to copper toxicity in the pig. By N. F. SUTTLE and C. F. MILLS .....	ix
Vitamin A and riboflavin concentrations in livers of intensively fattened cattle. By J. QUARTERMAN and C. F. MILLS .....	x
The effect of intramuscular iron injection on growth rates and haemoglobin levels of outdoor-reared piglets. By G. A. LODGE and B. HATTON .....	xi
The influence of dietary protein level on deposition of cholesterol in the tissues of the cholesterol-fed rabbit. By H. N. MUNRO, W. FORBES and MARIAN H. STEELE .....	xii
The efficiency of utilization of limiting amino acids: some sulphur and nitrogen balances. By G. DONOSO, D. S. MILLER and P. R. PAYNE .....	xiii

[Continued on p. iii of wrapper]