COMMONWEALTH INSTITUTE OF ENTOMOLOGY

56 Queen's Gate, London SW7 5JR, England

FIFTH INTERNATIONAL COURSE ON APPLIED TAXONOMY OF INSECTS AND MITES OF AGRICULTURAL IMPORTANCE

11 April-29 May 1983

This course, lasting seven weeks, will be held at the Commonwealth Institute of Entomology at the address below. It aims to provide training in the taxonomy of insects and mites of agricultural importance with special reference to the identification of pest species and their natural enemies, and will highlight the role of taxonomy as a major input in modern agricultural technology. A large part of the training will be devoted to practical work and demonstrations to equip participants with a working knowledge that will enable them to act as first-level field identifiers.

Candidates should preferably have a degree in biology or agriculture and be employed in a plant protection or field research orientated department with some involvement in pest identification.

Twelve students can be admitted to this fifth course, for which there is a fee of £500 Sterling. Maintenance in the U.K. will be the responsibility of the participants.

A limited number of fellowships may be made available by the Commonwealth Fund for Technical Cooperation to suitable candidates officially nominated by governments of the developing countries of the Commonwealth. These fellowships cover travel, subsistence and course fees.

Application forms for admission and further information may be obtained from the Director, Commonwealth Institute of Entomology, 56 Queen's Gate, London SW7 5JR, England. Closing date for receipt of applications 1 November 1982.

Review of Applied Entomology

prepared by the Commonwealth Institute of Entomology

A monthly abstracting journal in two parts: Series A (Agricultural) covering the world literature on insects, mites and other arthropods harmful to cultivated plants of every kind including forest trees, and also beneficial arthropods; Series B (Medical and Veterinary) covering the world literature on insects, mites, ticks and other arthropods that transmit diseases to men or livestock or cause any other form of injury to them.

Annual subscriptions: Series A £130, Series B £65 (£85 and £42 in member countries of the Commonwealth Agricultural Bureaux).

Further details and free sample copies from: Central Sales, Commonwealth Agricultural Bureaux, Farnham House, Farnham Royal, Slough SL2 3BN, UK.

Journal of Plantation Crops

- Official publication of the Indian Society for Plantation Crops, published twice annually in June and December. Volume IV in 1976.
- Publishes speedily original research articles and reviews on all aspects of all plantation crops including spices and condiments.
- —— Subscription: Rs.40 in India, US \$12.00 or £6.00 elsewhere.
- Special publication: Proceedings of the First Indian National Symposium on Plantation Crops held at Trivandrum in December 1972. Contains the full text together with the discussions that followed each of more than 50 papers presented at the Symposium. 220 pp.; Rs.50.00 (US \$20.00 or £10.00); February 1974.
- Editorial correspondence, manuscripts, and books for review to the Editor, Journal of Plantation Crops, Central Plantation Crops Research Institute, Regional Station, Vittal-574 243, Karnataka State, India.
- Correspondence regarding subscription and membership to the Secretary, Indian Society for Plantation Crops, Central Plantation Crops Research Institute, Kasaragod-670 124, Kerala State, India.

Systematics Association Special Volume No. 19

Biosystematics of Social Insects

edited by P.E. Howse and J.-L. Clement 1981, xii + 346pp., £28.20 (UK only) / \$68.00, 0.12.357180.4

Proceedings of an International Symposium held in Paris

The study of insect biosystematics has become increasingly important in explaining problems which go beyond the classical systematic approach and which are frequently of significance in agronomy and biological control. The classical approach is often inadequate when dealing with the social insects (especially the Isoptera and Hymenoptera) on account of the phenotypic variations arising from social polymorphism, and divergent interpretations can result.

Recent studies of social polymorphism, polyethism and inter-individual relationships have produced a better understanding of the diverse phenomena presented by social insects and of the relationships between such phenomena. This has enable a growing number of workers to examine the taxonomic problems in new terms using more exact solutions. These are based on the biological definition of the species — highertic analyses, karyology, pheromone specificity and enzymology.

species — biometric analyses, karyology, pheromone specificity and enzymology. This volume contains papers by eminent international specialists on social insects submitted at a symposium organized by the International Union for the Study of Social Insects in conjunction with the Systematics Association and held in Paris in September 1980. The symposium was devoted to the evaluation of different techniques and the comparisons of results.

Blackflies

The future for biological methods in integrated control edited by Marshall Laird
1981, xiv + 400pp., £28.20 (UK only) / \$58.00, 0.12.434060.1

Blackflies (Diptera: Simuliidae) occur in most parts of the world where there are fast-flowing streams to serve as habitats for their immature stages. Of the many species now recognized a few transmit Onchocera volvulus, the parasitic worm which is the causal agent of onchocerciasis. This disease affects 20 million or more of the inhabitants of tropical Africa, often inducing partial to total loss of sight, hence the term 'river blindness'. The disease is also encountered in Central America and in the Yemen where it is attributed to the importation of slave-labour from tropical Africa. Elsewhere, particularly in the northern continental areas of the USSR, USA, Canada and Scandinavia and even on isolated islands, in the mountain valleys of New Zealand for instance, other blackflies constitute a pest to man and animals to varying degrees of intensity. Attacks can have serious economic repercussions on construction work and on farming. Leading specialists in all fields connected with the description of and solution to the blackfly problem have contributed to this book. Classification, zoogeography, ecology and physiology are examined. There are summaries of past and present experience of control methods based on the use of synthetic organic chemical pesticides in the USSR, the Volta Basin and elsewhere. Innovative blackfly reduction procedures are considered and possible pathogens, parasites and predators investigated. Attention centres on those based upon the mass production and marketing of new biocontrol agents and a reasoned case is presented for biological methods which are safe in terms of health and acceptable in their environmental impact. Emphasis is placed upon the importance of an integrated control strategy which combines maximum efficiency with ecological





A Subsidiary of Harcourt Brace Jovanovich, Publishers London New York Toronto Sydney San Francisco 24-28 Oval Road, London NW1 7DX, England 111 Fifth Avenue, New York, NY 10003, USA

CAB ABSTRACT JOURNALS AND SERIAL PUBLICATIONS ANNUAL SUBSCRIPTION RATES 1982

	Frequency	Annual rates (paper or microform)	New subscriber rates £
Main abstract journals			
Agricultural Engineering Abstracts	M M	81	81 95
Animal Breeding Abstracts Arid Lands Development Abstracts	M M	146 146	146
Dairy Science Abstracts Field Crop Abstracts	M	151	98
Field Crop Abstracts	M M	189 146	123 95
Forestry Abstracts Forest Products Abstracts	M M	70	46
Helminthological Abstracts.			
AAnimal Helminthology	M Q	124 43	81 28
B—Plant Nematology Herbage Abstracts	м	108	70
Horticultural Abstracts	M	205	133
Index Veterinarius † Leisure Recreation & Tourism Abstracts	M Q	211 43	137 43
Nutrition Abstracts & Reviews.	Q	7.5	73
A—Human & Experimental	M	184	120
B—Livestock Feeds & Feeding	M M	124 227	81 148
Plant Breeding Abstracts Protozoological Abstracts	M	86	86
Review of Applied Entomology.			
A-Agricultural	M M	130	85 42
B—Medical & Veterinary Review of Medical & Veterinary Mycology	O	65 54	35
Review of Plant Pathology	Ň	130	85
Rural Development Abstracts	8	43	43 40
Rural Extension, Education and Training Abstracts Soils & Fertilizers	M	40 184	120
Veterinary Bulletin	M	167	109
Weed Abstracts	M	92	60
World Agricultural Economics and Rural Sociology Abstracts	M	146	95
Primary journal	172		
Bulletin of Entomological Research	Q	65	42
Specialist abstract journals	V	0,0	
Cotton & Tropical Fibres Abstracts	M	35	23
Crop Physiology Abstracts	M	102	66
Faba Bean Abstracts (New in 1981) Irrigation & Drainage Abstracts	M Q	28 42	18 27
Maize Quality Protein Abstracts	Q	12	8
Ornamental Horticulture	M	42	27 35 28
Plant Growth Regulator Abstracts Potato Abstracts	M M	54 43	33 28
Poultry Abstracts	M	72	47
Rice Abstracts	M	54	35
Seed Abstracts Small Animal Abstracts	M Q	60 30	39 20
Sorghum and Millets Abstracts	й	24	16
Soyabean Abstracts Triticale Abstracts	M	42	27
Triticale Abstracts Tropical Oil Seeds Abstracts	Q M	18 30	12 20
Serial publications	111	50	
Animal Disease Occurrence	H	43	_
Bibliography of Systematic Mycology	H	8	
Biocontrol News & Information Descriptions of Pathogenic Fungi and Bacteria	Q	36 11	23
Descriptions of Plant Viruses	Α	5	
Distribution Maps of Pests	Ĥ	19	
Distribution Maps of Plant Diseases Index of Fungi	H H	11 13	
Lentil Abstracts	Ä	^6	_
Forestry Card Title Service: Full Service (FA & FPA)	3.6	102	47
Full Service (FA & FPA) Forestry Abstracts only (FA)	M M	103 78	67 51
Forest Products Abstracts only (FPA)	M	43	28
Comprehensive Pig Information Service (write for details)		75 10	28 75 10
Index of Current Research on Pigs only Pig News and Information only	A O	25	25
Food Science and Technology Abstracts Complete	M	330	
Single parts	$\overline{\mathbf{A}}$	33 72	
Annual Cumulated Index A—Annual H—Half year M—I			arterly
† Formerly Rural Recreation & Tourism Abstracts.	Monthly		-

CENTRAL SALES, COMMONWEALTH AGRICULTURAL BUREAUX, FARNHAM HOUSE, FARNHAM ROYAL, SLOUGH SL2 3BN, U.K.

Tel.: Farnham Common (02814) 2281. Telex: 847964. Cables: Comag, Slough.

https://doi.org/10.1017/S000748530005022/ Published online by Cambridge University Press.

NOTES FOR AUTHORS

Papers submitted for publication in the Bulletin of Entomological Research should be sent, in duplicate, to the Director, Commonwealth Institute of Entomology, 56 Queen's Gate, London SW7 5JR. They must deal with original research concerning insects, mites or ticks of economic importance in the agricultural, medical or veterinary fields; they must be of more than purely local interest, and taxonomic papers will not be accepted unless the organisms dealt with are of definite importance in the field of applied entomology. Review articles may also be submitted, but will normally be by invitation. Papers must not have been published or accepted for publication elsewhere. They will normally be published in order of their receipt in definitive form.

For general guidance on presentation and style, including the preparation of illustrations, contributors are urged to consult Writing Scientific Papers in English. An ELSE-Ciba Foundation Guide for Authors (by Maeve O'Connor & E. Peter Woodford), 116 pp., Amsterdam, Associated Scientific Publishers, 1975, ISBN 90-219-4035-3.

Text

Papers should be typewritten (double spaced, with ample margins and on one side of the paper only) and a current number of the *Bulletin* should be consulted for details of style and lay-out. Titles should be as brief as is consistent with clarity. Abbreviations should conform to *British Standard 1991*, *Part I*, 1967, and are alike in singular and plural; stops will be used only where ambiguity might occur, *e.g.* 'in.' not 'in' for inch, but 'in' for square inch. Metric units are preferred; if non-metric units are used, metric equivalents should be given at least once in each article.

Tables

Tables should be reduced to the simplest form, and should not be used where text or illustrations give the same information. They should be submitted on separate sheets at the end of the article and must on no account be of a size or form that will not conveniently fit into the page of the *Bulletin*.

Illustrations

Line drawings and graphs must be in jet-black indian ink, preferably on bristol board or tracing cloth. Graphs may be drawn on paper ruled in pale blue or light grey; paper having green, red, yellow or brown lines should not be used. Any stippling or hatching, as well as any numerals or lettering, on the text-figures must be completed, by the author, in a form suitable for reproduction; this work is *not* undertaken by the printer. Text-figures, when reproduced, cannot exceed 12.7 cm in width; if, therefore, the original drawings are larger, the lettering on them must be in proportion, so that it is still legible when reduced; special attention should be paid to the relative scales of lettering and line thicknesses in relation to the figure as a whole. Photographs for reproduction as plates are admissible when they are a real contribution to the text. Captions to text-figures and plates should be typed on a separate sheet.

Abstract

Each paper must contain a carefully prepared and accurate informative abstract that shall be complete in itself and intelligible without reference to the text or figures. It should not exceed 250 words, and should be included at the beginning immediately after the title, author and author's affiliation.

References

References must be based on the name and year system and conform to the present usages of the *Bulletin*. Titles of journals should be abbreviated as in the 4th edition of *The World List of Scientific Periodicals*. References to unpublished information should normally be included only in the text—(A. B. Jones, pers. comm.) or (A. B. Jones. Control of sandflies by insecticides. Unpublished report. Ross Institute, London, 1950).

Off prints

Free copies of offprints are allowed as follows: One author—20 copies; two or more authors—30 copies. Further copies may be obtained on payment, and the number required should be specified when the paper is submitted.

MARCH 1982 VOL. 72 (1)

BULLETIN OF ENTOMOLOGICAL RESEARCH

(World List Abbreviation: Bull. ent. Res.)
ISSN 0007-4853

DAGE

·	1 /101
PAINE, G. D. Ticks (Acari: Ixodoidea) in Botswana	1
WARD, J. P. & BAKER, P. S. The tethered flight performance of a laboratory population of <i>Triatoma infestans</i> (Klug) (Hemiptera: Reduviidae)	17
Vazirani, T. G. Sukunahikona popei sp.n. (Coleoptera: Coccinellidae) feeding on scale insects (Hemiptera: Diaspididae) infesting coconut palm in Gujarat, India	29
Gauld, I. D. A revised key to the <i>Enicospilus antefurcalis</i> (Szépligeti) (Hymenoptera: Ichneumonidae) species-group of the Afrotropical region	33
JOHNSON, C. G., CROSSKEY, R. W. & DAVIES, J. B. Species composition and cyclical changes in numbers of savanna blackflies (Diptera: Simuliidae) caught in suction traps in the Onchocerciasis Control Programme area of West Africa	39
House, A. P. R. Chemosterilisation of Glossina morsitans morsitans Westwood and G. pallidipes Austen (Diptera: Glossinidae) in the field	65
Vale, G. A. The trap-orientated behaviour of tsetse flies (Glossinidae) and other Diptera	71
VALE, G. A. The improvement of traps for tsetse flies (Diptera: Glossinidae)	95
WILLIAMS, D. J. The distribution and synonymy of Coccus celatus De Lotto (Hemiptera: Coccidae) and its importance on coffee in Papua New Guinea	107
WILLIAMS, D. J. Pulvinaria iceryi (Signoret) (Hemiptera: Coccidae) and its allies on sugar-cane and other grasses	111
MOSHA, F. W. & MUTERO, C. M. The influence of salinity on larval development and population dynamics of <i>Anopheles merus</i> Dönitz (Diptera: Culicidae)	119
Fennah, R. G. A new species of <i>Alcestis</i> (Homoptera: Fulgoroidea: Tropiduchidae) attacking cacao in Brazil	129
GHAURI, M. S. K. A new subspecies of <i>Dimorphopterus cornutus</i> Slater (Hemiptera: Lygaeidae) from Papua New Guinea on rice and carpet grass	133
RAWLINGS, P. & DAVIDSON, G. The dispersal and survival of Anopheles culicifacies Giles (Diptera: Culicidae) in a Sri Lankan village under malathion spraying	139
JACKAI, L. E. N. A field screening technique for resistance of cowpea (Vigna unguiculata) to the pod-borer Maruca testulalis (Geyer) (Lepidoptera: Pyralidae)	145
WIKTELIUS, S. Flight and settling behaviour of Rhopalosiphum padi (L.) (Hemiptera: Aphididae)	157
FINCH, S. & SKINNER, G. Trapping female cabbage root flies (<i>Delia radicum</i> (L.)) (Diptera: Anthomyiidae) with allylisothiocyanate-baited traps	165

© Commonwealth Agricultural Bureaux, 1982

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without prior permission of the copyright owner.