INTERNATIONAL ORGANIZATION FOR BIOLOGICAL CONTROL OF NOXIOUS ANIMALS AND PLANTS (IOBC)
ORGANISATION INTERNATIONALE DE LUTTE BIOLOGIQUE CONTRE LES ANIMAUX ET LES PLANTES NUISIBLES (OILB)

IOBC NEWSLETTER 4

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IOBC is affiliated with the International Council of Scientific Unions (ICSU) as the Section of Biological Control of the International Union of Biological Sciences (IUBS)

NEW MEMBERSHIP FEES OF IOBC

The Council of the Organization has now endorsed the proposal of the Executive Committee to establish the following annual fees for membership, beginning from January 1975:

(1) Individual membership fee **without** the journal Entomophaga - Swiss Francs (SF) 15.

(2) Individual membership fee **with** the journal Entomophaga - SF 65.

(3) Institutional membership fee **with** the journal - SF 300.

(4) Supporting membership fee **with** the journal - SF 1800.

Members under (1) will receive the Newsletters and other IOBC documents, and also an abstract of the articles published in Entomophaga. The abstracts will be distributed by the publisher at the beginning of the year following membership. Members under (2), (3) and (4) will receive Newsletters and IOBC documents in addition to Entomophaga. Members are requested to pay their fees in SF to the IOBC treasurer directly [Bank account no. 786.095, Swiss Bank Corporation (Société de Banque Suisse), Avenue de la Gare, 2800 Delémont (Switzerland)] or through their Regional Section or country representatives.

ENTOMOPHAGA

It is IOBC policy to broaden further the scope of papers published in **Entomophaga**, so that its coverage reflects IOBC's concern with biological control in its wider sense and with integrated control. It is also desired to raise further the general quality of the papers published. To these ends, members and other scientists working on the various biological forms of control or on integrated control are invited to submit to **Entomophaga** papers of high quality for publication.

IOBC's PRESIDENT VISITS THE URSS

As a member of a US/USSR joint conference group on integrated pest control, and representing as well biological control, IOBC's President, Professor Carl Huffaker, had the pleasure of visiting the Soviet Union this summer (20 June to 20 July). He was especially interested in the strong emphasis in the USSR that is put upon biological control in both its classical and broader connotations.

The research being done and planned by the All-Union Institute of Plant Protection in Kishinev, Moldavia, is extensive and in depth. Present facilities there are soon to be greatly enlarged by construction of a modern building complex for biological control. Likewise, in Leningrad, the All-Union Institute of Plant Protection, which has a strong group in biological control, is currently in the process of moving into extensive new quarters in Pushkin on the outskirts of Leningrad. These two strong centers of activity are extensively complemented by active and enthusiastic biological control scientists at many other locations throughout the Soviet Union.

Not all the important places could be visited in the time available, but Drs. I. A. Chourayev and V. A. Lebedev of the Ministry of Agriculture arranged that those places especially requested were worked in. Prof. Huffaker wishes to express here his great appreciation to all the fine scientists, too numerous to name, who hosted him and his companion, Dr. J. G. Horsfall, and shared their ideas and developments with them.

Visited were Moscow, Leningrad, Kishinev (Moldavia), Kiev (Ukraine), Tashkent, Samarkand and Buchara (Uzbekistan) and Alma Ata (Kazakstan). Of special note were their highly sophisticated automated facility and technique for mass production of **Trichogramma** (Leningrad) and the extensive use made of mass «commercial» releases for control of field crop pests (e.g. in Moldavia and the Ukraine).

Bacillus thuringiensis is widely used (some 100,000 hectares in Moldavia alone), and so is the predatory mite **Phytoseiulus persimilis** (in over 200,000 sq. meters of glasshouse crops in Moldavia alone). In Kiev, they are extensively studying **Chrysopa** spp. and certain staphylinids and syrphids for use in mass release programs. Of special interest, studies are being conducted on the natural enemies of codling moth in the native home area of wild apples at Alma Ata (Kazakstan). Obtained for introduction into the U.S. were a nuclear polyhedrosis virus of the codling moth and two parasites of this pest, **Microdus rufipes** and **Ascogaster quadridentatus**.

Systems of prognosis for prediction of populations of **Hadena** and of **Agrotis segetum** in wheat have been considerably developed in Kazakstan.
The mass rearing of the codling moth developed at Kiev for use in studies on control or eradication programs was highly efficient and economical. Noted also were studies of biological control factors associated with several plant diseases (e.g. **Fusarium** and various wilt organisms) especially in Kiev and Tashkent.
Lastly, an extensive program is underway under Dr. V. Burov at Leningrad to develop new insect hormone analogues and to test these and other hormones for insect control.

BIOLOGICAL CONTROL OF WEEDS WORKING GROUP

New Station for **Lantana** control (K.L.S. Harley) [Taken from Newsletter No. 7 of the Biological Control of Weeds Working Group]

In June 1973 the Division of Entomology, CSIRO, Australia, established a field station at Curitiba, Parana, Brazil, for investigations into biological control of **Lantana camara**. Curitiba is central to a region of very diverse topography and climatic types and contains a variety of taxa of **L. camara** and related **Lantana** spp. John A. Winder, entomologist-in-charge, will study factors controlling **Lantana** in the region and conduct preliminary studies for selection of potential control agents and of their host specificity.

Newsletter No. 7 of the Biological Control of Weeds Working Group carried a report (too lengthy to reproduce here) by P. Harris and D. Peschken covering the developments until 1973 of 10 major biological control of weeds programs of the Canadian Department of Agriculture. Weed pests studied included: Knapweed (**Centaurea maculosa** and **C. diffusa**), Ragwort (**Senecio jacobaea**), St. John's wort (**Hypericum perforatum**), Spurge (**Euphorbia esula** and **E. cyparissias**), Toadflax (**Linaria vulgaris**) and Thistle (**Cirsium arvense, Carduus nutans** and **Cirsium vulgare**).

NEWS AND REPORTS FROM THE REGIONAL SECTIONS

WESTERN HEMISPHERE REGIONAL SECTION (WHRS)

(a) Foreign Exploration - USA Integrated Pest Management Project

An integral part of NSF Project GB34718, «The Principles, Strategies and Tactics of Pest Population Regulation and Control in Major Crop Ecosystems», is the introduction of natural enemies against many major crop pests in the United States.
In 1972-3, approximately 38 natural enemy (including pathogens) species and races were imported under this sponsorship.
Major attention was given to pests of citrus, alfalfa, and soybeans. Most noteworthy was an **Aphytis** sp. sent from Hong Kong which is showing great promise for controlling citrus snow scale, **Unaspis citri** (Comstock), in Florida. Many of the introductions in this project were sent in by cooperation in originating countries represented in the IOBC and is a real example of the great importance IOBC has in fostering international communication and assistance.
In 1974, in addition to further effort on the above, search was conducted in Latin America for natural enemies of the cotton boll weevil by D. J. Calvert, and in the Middle East for natural enemies of deciduous fruit pests by J. C. Ball.
Dr. Calvert spent three months in Argentina, southern Brazil and Paraguay searching native Malvaceae for species of **Anthonomus** and other hosts that might provide useful natural enemies for the cotton boll weevil. Although **Anthonomus grandis** (Boheman) is not known to occur in these areas, it was felt that the climatic correspondence with cotton growing areas in the United States justified this emphasis on alternate hosts. Dr. Calvert has now extended the search to southern Mexico and Central America and is concentrating on **A. grandis** in wild cotton and other native hosts. The recently established quarantine station at Gainesville, Florida, is responsible for initial reception and handling of shipments.
Search for natural enemies of deciduous fruits was conducted in Iran, Pakistan, and Afghanistan during the period May through July. This region was selected because of its historical role in the domestication of many of our deciduous fruits, the presence of wild host species and historical trade and migratory routes, all favoring a long association with pests and their natural enemies in the area. Twenty-five shipments were sent by Dr. Ball to the University of California Quarantine Station at Albany for processing. Included were natural enemies of pear psylla, codling moth, peach twig borer, San Jose scale, and dusky-veined aphid [**Callaphis juglandis** (Goeze)]. Much of the success of the trip is due to the assistance given Dr. Ball by institutions and individuals in the countries visited. Particular thanks must go to Drs. M. Esmaili and S. Voisdani (University of Teheran, Karaj) and Mrs. Beheshti (Plant Pest and Diseases Research Institute, Isfahan) in Iran, Drs. M. A. Ghani and I. Mohyuddin and Mr. S. Namid (CIBC Station, Rawalpindi) in Pakistan, and Drs. P. M. Seddiqi and A. Z. Habibi (Kabul University, Kabul) in Afghanistan.
It is yet too early to report on the fate of these introductions.

(b) Amblyseius stipulatus recovery

Dr. J. A. McMurtry (Univ. Calif., Riverside) reports recovering **Amblyseius stipulatus**, a predatory mite introduced from the Mediterranean, at sites in California several winters after initial release. It even appears to be replacing the native spider mite predator, **A. hibisci**, on the release trees (citrus). This may prove to be the first truly successful intentional introduction of a predatory mite.

(c) Tachinids reared from Heliothis spp. (Noctuidae) in Chile

(Prof. R. Cortés, Estacion Experimental Agronomica, Universidad de Chile, Casilla 1004, Santiago)

Twelve species of **Tachinidae (Diptera)** have been reared in Chile during the past five years from the three species of **Heliothis** known to occur in the country, i.e. **H. atacamae** Hardwick, **H. gelotopoeon** (Dyar) and **H. zea** (Boddie) by different Entomologists working in Arica, La Cruz and Santiago. The parasitic species and their reported distribution (R. Cortés det.) are:

Actinoplagia koehleri Blanchard, Chile & Argentina
Archytas scutellatus (Macquart), Chile
Ateloglutus chilensis (Bréthes), Chile
Chaetocnephalia americana (Schiner), Chile & Argentina
Eucelatoria australis Townsend, Chile & Peru
Gonia pallens Wiedemann, Neotropical
Incamyia charlini Cortés, Chile
Incamyia chilensis Aldrich, Chile, Argentina, Peru & Uruguay
Incamyia spinicosta Aldrich, Chile & Argentina
Lespesia nimia Cortés & Campos, Chile
Peleteria pygmaea (Macquart), Chile & Argentina
Winthemia ignobilis (Wulp), Chile.
These parasites have been recorded from larvae of **Heliothis** taken from alfalfa, corn plants, potatoes, tobacco, etc., and less frequently (except for the genus **Archytas**) from corn cobs.

WEST PALEARCTIC REGIONAL SECTION (WPRS)

(a) From the report of the Secretary General to the 3rd Council meeting of WPRS

In the history of biological control, over many years, we could claim only isolated successes. There was no question of general application of this control method. In most cases it was seriously considered only after the failure of conventional control methods. Since its creation in 1956 IOBC has tried to change this opinion about biological control. But to convince the interested people of the usefulness of the approach, concrete examples were necessary. Especially the economic feasibility of this method has to be proven. The point has now been reached in our region where this confidence in biological control in its most diverse forms has become manifest. It is no exaggeration to state that biological control is now considered seriously in most insect control programmes. Unfortunately such a situation does not exist for the control of diseases. But in this case chemical control has not encountered so many drawbacks, which could explain the lack of research in this respect.
All this has to become evident in our Organization's activities. Consequently a greater part of our efforts has to be used more directly to solve the problems of the application of biological control methods.
In the first place we have started a dialogue with the European authorities. Discussions have taken place with the European Economic Community and with the European Plant Protection Organization. Moreover we are convinced that the successful application of biological control methods will also depend on the support which can be given by industry. This will especially be the case in the development of selective pesticides. To achieve this a dialogue between industry and our Organization will be indispensable.
To support this the Council was asked to study the establishment of a Working Group «Pesticides and beneficial arthropods». It is evident that the high standard of the scientific and technical results of our Working Groups has to be maintained to enable us to fulfil our task.

(b) Working Group «Pesticides and Beneficial Arthropods»

The first meeting of this Working Group was held at the Swiss Federal Agricultural Research Station of Reckenholz, Zürich, on 20 and 21 May 1974. 16 experts from 7 countries participated in the meeting (convenor: J. M. FRANZ - Darmstadt, F.R.G.). The objectives of the Working Group were defined as follows:
To investigate systematically the side-effects of pesticides on beneficial arthropods (at present without pollinators and arthropods improving the quality of the soil); to develop standardized test methods to obtain reproducible results in the laboratory and meaningful results in the field which can be incorporated in the official protocol for pesticide registration

RECENT IMPORTATION OF NATURAL ENEMIES INTO THE USA BY THE US/IBP INTEGRATED PEST MANAGEMENT PROJECT

(Listed are species in culture or established)

Host	Natural enemies	Country of origin	Receiving laboratory
CITRUS			
Citrus rust mite	**Hirsutella thompsonii**	Texas	Lake Alfred, Florida
Citrus bud mite	**Hirsutella** sp.	Rhodesia	Lake Alfred, Florida
Black scale	**Verticillium lecanii**	Israel	Lake Alfred, Florida
Spodoptera littoralis	**Nomuraea rileyi**	Israel	Lake Alfred, Florida
Citrus snow scale	**Aphytis spp.**	Hong Kong	Lake Alfred, Florida
SOYBEAN			
Velvetbean caterpillar	**Microcharops bimaculata**	Brazil	Quincy, Florida (via Moorestown, N.J.)
	Microcharops sp.	Colombia	Quincy, Florida (via Moorestown, N.J.)
	nuclear polyhedrosis virus	Brazil	Gainesville, Florida
	Spicaria sp.	Brazil	Gainesville, Florida
Southern green stinkbug	**Entomophthora** sp.	Brazil	Gainesville, Florida
	Microphanurus sp.	Colombia	Gainesville, Florida
	Trissolcus basalis	Trinidad	Gainesville, Florida
	Trichopoda pinnipes	Hawaii	Gainesville, Florida
		Monteserat	Gainesville, Florida
		Trinidad	Gainesville, Florida
		Colombia	Gainesville, Florida
		Brazil	Gainesville, Florida

later on; to define the criteria for evaluation of these side-effects to establish later on a net of testing stations within the WPRS of which the results are recognized by countries in which WPRS operates.

No formal papers were read, but the problem was thoroughly discussed and agreement on the principles of work obtained. For the evaluation of the results of laboratory tests not the mortality of parasites or predator will be counted, but the reduction of the beneficial capacity, i.e. the degree of parasitization or of prey intake and fertility, respectively. A list of entomophagous species to be considered was established. As criteria for the selection of pesticides to be tested first, the following points were adopted: pesticides already on the market and allegedly harmless to entomophagous arthropods; pesticides most frequently applied, like fungicides and herbicides; different formulations of the same active ingredient to find the most selective one; new preparations, not yet on the market, for official definition of their selectivity, including substances for biotechnical control like pheromones or growth regulators.

The work of the group will be particularly important in integrated pest control, as the farmer will be able to select pesticides on the basis of their effect on beneficial arthropods and the industry will pay more attention to the development of selective pesticides. The next meeting will be between March 2 and 4, 1975, at Colmar (France).

(c) Working Group «Integrated Control in Vineyards »
At its first meeting this group has evaluated the major phytosanitary problems encountered in viticulture. Further activities will be based on this analysis. Entomological as well as phytopathological problems will be dealt with.

(d) Working Group «Integrated Control in Mediterranean Pine Forests»
This group has chosen the following as its main research items: (a) analysis of factors determining the population fluctuations of **Thaumetopoea pityocampa**, (b) mortality of **T. pityocampa** following use of **B.t.**, and (c) action of predatory birds and the parasite **Phryxe caudata** on this pest.

(c) Working Group «Biological Control of Graminaceous Crops»
Council of WPRS decided to end this Group. [It is hoped that activity in this area will be developed among other Regional Sections.]

PACIFIC REGIONAL SECTION

(a) The end of the FAO Rhinoceros Beetle Project (Apia, W. Samoa) is planned next year. Biological control of **Oryctes rhinoceros** on coconuts with **Rhabdionvirus oryctes** in Samoa, Wallis, Fiji, Tonga, and New Britain is now an established fact. The virus is available from Apia, Fiji and Wallis (it was sent to Mauritius, Africa, Madagascar etc.).

(b) Brontispa longissima (Col., Chrysom. Hispinae) is spreading on coconuts in Pago Pago (Amer. Samoa). Dr. I. Swan is conducting a mass rearing of the larval and pupal parasite, **Tetrastichus brontispae** (Hym., Eulophidae). **Othreis fullonia** (Lep., Catocalinae), a fruit sucking moth, is another important pest on tomatoes in American and Western Samoa. Parasites of eggs and larvae should be introduced from New Caledonia.

(c) **Achatina fulica** (the Giant African Snail) is spreading, mainly in New Caledonia. Predator snails (Gonaxis and Euglandina) have been introduced against it.
Prof. A. R. Mead (Arizona Univ.) has pointed out that people in Tahiti are cautious about such introductions. It is hoped that man will prove to be an excellent predator and a canning factory using young Giant African Snails is planned for Tahiti.

(d) Work on biology and population ecology of **O. fullonia** is finished in New Caledonia; an egg parasite, **Ooencyrtus sp.** (Hym., Encyrtidae) and a tachinid fly (**Winthemia caledoniae**) could be used against this moth or its relatives elsewhere. **Polistes** wasps are excellent predators of this pest. Work on citrus scale insects and their parasites continues.

(e) In Tahiti, **Bacillus thuringiensis** provided good results against **Plutella xylostella** on cabbage; in New Caledonia, the predatory mite **Phytoseiulus persimilis** (sent from Europe) proved effective against **Tetranychus urticae** on vegetables in gardens around the town of Noumea. **P. persimilis** has been introduced in New Hebrides and its use is planned in Tahiti and Solomon Islands.

SOUT AND ASIAN REGIONAL SECTIONS (SEARS)

(a) Recent investigations on microbial insecticides and microbial control in Japan (from the President of SEARS)
Recent investigations on microbial insecticides and microbial control in Japan mainly concern viruses and bacteria. Pathogens and target insects are as follows:

(i) Viruses

Nuclear polyhedrosis virus: **Spodoptera litura, Hyphantria cunea, Mamestra brassicae, Euproctis subflava, Lymantria fumida**
Cytoplasmic polyhedrosis virus: **Dendrolimus spectabilis, Lymantria fumida**
Granulosis virus: **Pieris rapae crucivora, Adoxophyes orana, Chilo suppressalis.**
Among them, cytoplasmic polyhedrosis virus of **D. spectabilis** has been widely disseminated by helicopter and a commercial preparation will be registered in the very near future. The effectiveness of the nuclear polyhedrosis virus of **S. litura** has been evidenced in the field and techniques for mass producion of the virus, bioassay, and formulation have been well developed.

(ii) Bacteria

A commercial product of **Bacillus moritai** which is effective for the control of the house fly has been approved for manufacture by the Ministry of Public Welfare based on the results of safety tests.
In January 1971, foreign **Bacillus thuringiensis** products have been exempted from plant quarantine in Japan. In 1972, the Japan Plant Protection Association set up the Study Committee on **B. thuringiensis** preparations, which comprises 5 sections (Fundamental research, Sericulture, Apiculture, Effectiveness, and Safety). At present 11 **B. thuringiensis** preparations including home and foreign products provided by 9 Japanese companies are experimentally applied in the field, and the discussions are focused on the registration of **B. thuringiensis** preparations.

(iii) Fungi

Climatic conditions, particularly high humidity, are quite adequate for the dissemination of fungi in Japan. Fundamental study on the utilization of fungi is in progress. Recently, the significance of microbial insecticides has been greatly recognized in Japan. For example, in 1972, the Japanese Society of Fermentation Technology organized a symposium on microbial insecticides which has become one of the subjects in fermentation technology in Japan. In 1972, the Science and Technology Agency, of the Japanese Government has set up the Study Committee on Prospective Pesticides. Microbial insecticides are included in the plans and requirements and supports are now being discussed.

(b) South-East Asian Workshop on Aquatic Weeds
BIOTROP (Regional Center for Tropical Biology), Bogor, and the Brantas River Multipurpose Project of the Dept. of Public Works and Power, Indonesia organised a Workshop on Aquatic Weeds at Malang, East Java, from 25th to 29th June. It was attended by scientists representing most of the countries of South-east Asia and also the UK, the USA and Holland. The distribution, ecology, economic importance and control of several species of aquatic weeds were discussed and a one-day tour of weed-infested areas was arranged.
It was generally agreed that **Eichhornia crassipes, Salvinia molesta, Pistia stratiotes** and **Hydrilla verticillata** were the most important aquatic weeds in the region which warranted immediate attention from the point of view of biological control. Basic investigations on the natural enemies of these weeds have already been completed by CIBC, USDA and other agencies. Field releases of **Paulinia acuminata**, a semi-aquatic Acridid which attacks **Salvinia**, have been made in some parts of Africa, India and Sri Lanka, and the species is now well established in Lake Kariba where its control value is being assessed.

(c) Sturmiopsis parasitica
Stocks of **Sturmiopsis parasitica**, a Tachinid parasite of graminaceous borers (**Sesamia, Busseola, Chilo** and **Eldana**) in Africa, are now available with CIBC Indian Station, Bangalore. For the first time, this parasite has been successfully bred in the laboratory and its biology studied. A paper dealing with these aspects is being published. In the laboratory the parasite has been found to attack many Indian species of graminaceous borers readily. Field trials are in progress. Those interested in obtaining stocks of the parasite for trial may contact the Entomologist-in-charge, CIBC Indian Station, P.O. Box 603, Bangalore 560 006, India.

WANTED

(a) Information on natural enemies of cotton leaf perforator **Bucculatrix thurberiella** and related species in view of the recent accidental introduction of **Bucculatrix** sp. into Barbados where it has become a major cotton pest.
Please contact: Dr. F. D. Bennett, CIBC West Indian Station, Gordon Street, Curepe, Trinidad, West Indies.

(b) Request for an egg predator against **Tarophagus proserpina**, a Delphacid plant hopper on Taro (**Colocasia esculenta**), in the Solomon Islands. Please write to Jim Stapley, Senior Research Officer, Department of Agriculture, P. O. Box 25, Honiara, British Solomon Island Protectorate.
This egg predator could be **Cyrtorhinus fulves** which was introduced in Samoa, Hawaii, the Philippines, etc.

(c) **Pathogens of Glossina:** Dr. M. Shapiro, Research Unit on Vector Pathology, Memorial

University of Newfoundland, St. John's, Newfoundland, Canada, is interested in any work that has been done on pathogens of **Glossina.** If you have any information please contact him.

PUBLICATIONS OF INTEREST

Following are some publications of interest to workers in biological control or integrated control that have come to the attention of the editors. This is not intended to be a complete listing and we will appreciate having other new books called to our attention.

Integrated Control in Glasshouses (WPRS Bulletin 1973/4)
Report of the meeting of the Working Group «Integrated Control in Glasshouses» held from 18 to 20 September, 1973 at the Glasshouse Crops Research Institute, Littlehampton, England. Available from L. Brader, Instituut voor Plantenziektenkundig Oonderzoek, Binnenhaven 12, Wageningen, the Netherlands.

Bulletin - «Insect Liberations in Canada - Parasites and Predators - 1973.
Available from J. S. Kelleher, Agriculture - Canada, Research Branch, Ottawa, Ontario K1A OC6

Biological Control by Natural Enemies, by Paul DeBach. 1974. Cambridge University Press. 325 pp. Cloth $ 14.95. Paper $ 5.95

Insect Population Ecology: An Analytical Approach, by G. C. Varley, G. R. Gradwell and M. P. Hassell. 1974. Univ. of California Press, Berkeley. 212 pp. Paperback $ 7.95.

Biological Control. C. B. Huffaker (ed.). Paperback edition of the 1971 publication. Plenum Press, N.Y. 511 pp. Paperback $ 8.95.

The Functional Response to Prey Density in an Acarine System, H. G. Fransz. 1974. Centre for Agric. Publ. and Documentation, Wageningen, the Netherlands. 143 pp. Paperback.

Proceedings of the FAO Conference on Ecology in relation to plant pest control. Edited by FAO, Roma, Italy, 1974, 326 pages. Those who requested them through the IOBC Secretary General will receive them in due course.

OILB/SROP (IOBC/WPRS): **Contrôle visuel en verger de pommier.** Brochure No. 2, 2nd edition, 1974. 82 pages, paperback. Available from the Secretariat OILB/SROP, Instituut voor Plantenziektenkundig Onderzoek, Binnenhaven 12, Wageningen, The Netherlands, price SF 5 (US $ 1.60).

OILB/SROP (IOBC/WPRS): **Les organismes auxiliaires en verger de pommier.** Brochure No. 3, 1974, 242 pages (with colour plates). Available from the Secretariat OILB/SROP, Instituut voor Plantenzienktenkundig Onderzoek, Binnenhaven 12, Wageningen, The Netherlands, price SF 21 (US $ 7).

CIBC PUBLICATIONS

A Catalogue of Parasites and Predators of Terrestrial Arthropods. Section A, Host or Prey/Enemy. Vol. 3, Coleoptera to Strepsiptera (Price £ 5.00)

Proceedings of the 2nd International Symposium on Biological Control of Weeds. Rome, 1971. CIBC Misc. Publ. No. 6 (Price £ 2.00)

Proceedings of the 3rd International Symposium on Biological Control of Weeds. Montpellier, 1973. Copies are expected to be available by October 1974.

Copies of these publications may be ordered from the Commonwealth Agric. Bureaux, Central Sales, Farnham House, Farnham Royal, Slough SL2 3BN, England.

REQUEST FOR DATA ON ENTOMOLOGISTS AND RELATED SPECIALISTS

(Kent H. Wilson, P.O. Box 1097, Edmond, Oklahoma 73034, USA)

Data are being assembled on the entomologists of the world, past and present: authors, collectors, dealers, acarologists, and related specialists. Data on about ten thousand entomologists have already been accumulated. The list is now being updated by asking for data from living entomologists (including acarologists).

Sydney Gould published comparable data concerning botanists in 1965. The entomologists retrieval codes used in this project will follow the system developed by S. Gould and will be registered and combined with Gould's. An individual's code will thus be the same unique code in both systems.

Data will be made available for use in data retrieval systems. The purpose is to establish an author data bank for working with entomology and related fields (mathematics, biometry, color, etc.). Personal data on finances, marriage, political affiliation, opinions, use of products, and other data that are not pertinent to entomology **are not required or wanted.** The sole purpose is to aid in the storage of entomological and related data. The results will be made available in three forms: (1) published list of names, dates, sources, interests, (2) data will be placed on the requestor's computer tape for possible use in this system, and (3) full data on an individual in the files will be made available upon request. It is hoped that, subsequently, additional data (list of publications, new taxa, etc.) will also be stored on tape and made available for distribution and retrieval. No attempt has been made to be exclusive; the intent is to be inclusive. If you have published or contributed in any way to the field of entomology, it would be appreciated if you would fill out and return the enclosed Questionnaire.

Editors and organizers of this issue:
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