

sip

newsletter

society for invertebrate pathology

Volume 14, Number 1
February 1982

INVERTEBRATE PATHOLOGY AND MICROBIAL CONTROL
IIIRD INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY
XVTH ANNUAL MEETING; SOCIETY FOR INVERTEBRATE PATHOLOGY
University of Sussex, Brighton, United Kingdom
September 5th - 12th, 1982.

Registration

Applications for registration should be received by 30th April, 1982. The standard registration fee will be £35 with reductions for students. There will be a surcharge for late registration. The fee will include a copy of the abstracts and proceedings arising from the meeting. Registration form is included as an insert in this Newsletter.

Accommodation

The University of Sussex is a campus university about 3 miles from Brighton. Accommodation is available in the form of single study-bedrooms. A list of hotels in the Brighton area is available on request, but participants wishing to stay in an hotel must make their own reservations. All hotels are some distance from the campus and are likely to prove more expensive than university accommodation. Individuals interested in selfcatering accommodation should contact the conference organizers for further details. Conference participants are recommended to book meals at the university as alternative restaurants are some distance away. A deposit of £20 for accommodation should accompany all bookings. The balance will be payable in sterling at the conference.

Programme

A provisional programme is attached to assist you with your bookings. It may be necessary to re-arrange the times of some sessions.

Papers

Abstracts of papers on any aspect of invertebrate pathology for presentation at open-paper or poster sessions should be submitted by April 30th, 1982. Instructions on the preparation of abstracts are enclosed in this Newsletter. Please indicate if you would prefer to present your paper as a poster. It may also be necessary for the organizers to request that some papers are presented as posters. Details of the size of posters will be forwarded later.

Social events

An official reception has been planned for Tuesday 7th September. This will be held at Brighton's historic Royal Pavillion. The number that can be catered for is limited,

so please indicate on the registration form if you wish to attend. There will be no charge for the reception, which comprises drinks and light refreshments but not a full meal. Participants may wish to use this opportunity to dine in Brighton.

The society banquet is planned for the evening of Thursday 9th. A small supplementary charge may be necessary. Details will be available at the meeting.

Please indicate on the registration form if you require further details of a programme for accompanying persons. It is also hoped that some package tours may be available before or after the conference. For further details, please contact Mrs. Sylvia Falcon (address given below).

Travel

For visitors from overseas arriving by air, Brighton is most easily reached from London's airport at Gatwick rather than Heathrow. From Gatwick take a train to Brighton. Change at Brighton for Falmer station, which is directly opposite the university campus. For visitors flying into Heathrow, travel to Victoria station by coach or underground and then take the train to Brighton and Falmer.

Mrs. Sylvia Falcon of the Point of Departure Travel Service, 1669 Shattuck Ave., Berkeley, CA 94709, USA [Telephone (415) 845-6636] will be pleased to advise on travel arrangements for visitors from North America.

Finance

Possible sources of finance for participants have been investigated. In particular, applications for support from IUBS can be submitted to us from participants from developing countries. Any support from this source would only cover half of the estimated costs, with half having to be provided by the participant's Institution. Also, the Society for General Microbiology (UK) has made a contribution to offer reduced conference expenses for students belonging to this British society. Students wishing to take advantage of the society grant should enclose a letter from their supervisor or head of department confirming their student status and membership of the society. It is also hoped that some finance may be available from NIH.

Related meetings

For nematologists, there is a meeting of the European Society of Nematology the previous week in the UK. For those with mycological interests, there is a meeting of the British Mycological Society from September 14th, 1982, entitled "Microbe and Animal Interactions".

Acknowledgements

The organizers would like to thank the following organizations for their financial support of this meeting: The Royal Society, Sandoz Inc., Abbott Laboratories, Society for General Microbiology, Shell Research Ltd., Dow Chemical Company, May and Baker Ltd.

Dr. C.C. Payne and Dr. H.D. Burges, Joint Organizers, Glasshouse Crops Research Institute, Worthing Road, Littlehampton BN16 3PU, United Kingdom.

FIRST FIELD TRIALS WITH THE NEMATODE *Neoaplectana carpocapsae* IN VENEZUELA

Until now very little work has been done in Latin America on this nematode. Earlier, a few field and laboratory experiments were carried out on some agricultural pests in Mexico, Colombia, Peru and Argentina. Recently, Dr. John Oswald, from the Department of Entomology, Londond School of Hygiene and Tropical Medicine, came to Venezuela to conduct the first field experiments with this nematode. His objective is to control triatomine bugs, vectors of Chagas Disease which is still a great problem in Latin America. During the last four years, Dr. Oswald has been intensively working on this project through laboratory experiments. In October of 1981, he started his field experiments in San Carlos, State of Cojedes, where experimental houses were constructed. During his stay in Venezuela, he visited the Agronomy Faculty of Central University in Maracay, where he gave a lecture for the Department of Agricultural Zoology on "The nematode *Neoaplectana carpocapsae* a biological control agent of insects, and its potential for the control of triatomine bugs". Dr. Oswald's research was made possible by a grant from the World Health Organization.

H.J.M. Wassink
Universidad Central de Venezuela

SIP NEWSLETTER

The SIP Newsletter is produced four times a year by the Society for Invertebrate Pathology. Annual dues in the Society are: US members, including A.I.B.S. affiliation, \$12.00; non-US members, \$11.00; and students, \$4.00. Members receive the SIP Newsletter free. Application forms for Membership in the Society may be obtained from the Treasurer, Dr. James D. Harper, Dept. of Zoology-Entomology, Auburn University, Auburn, Alabama 36849 USA. Council Officers of the Society are:

President	Phyllis T. Johnson, USA
Vice President	Wayne M. Brooks, USA
Past President	Jaroslav Weiser, Czechoslovakia
Secretary	Oswald N. Morris, Canada
Treasurer	James D. Harper, USA
Trustees	H. Denis Burges, England
	Michael C. Mix, USA
	Terry L. Couch, USA
	Peter Luthy, Switzerland

Send news items and other contributions to:

Sardar S. Sohi, Editor
SIP Newsletter
Forest Pest Management Inst.
Canadian Forestry Service
P.O. Box 490
Sault Ste. Marie, Ontario Canada P6A 5M7

Symposia key

(see Program on page 3)

APPLICATION - Application Techniques for Pathogens Used in Agriculture and Forestry.

Covers all methods of use from vectors, release of diseased insects, to baits, sprays and fogs.

CONTROL - Progress in the Development and Use of industrially produced Microbial Control Agents for Pest Control in Agriculture in the Western Hemisphere.

Reviews of progress made with the major pathogens: *B.t.*, *Hirsutella*, *Nosema*, *Neoaplectana*, NPVs, GVs.

DEFENCE - Defense Responses of Invertebrates.

Immune recognition, induction, cellular immunity and the functions of various immune factors.

DIAGNOSIS - Diagnostic Techniques in Invertebrate Pathology.

Review of various techniques mainly with viruses but of use in other groups. ELISA, RIA, cell cultures, PAGE, DNA homology, etc.

FOREST-VIRUS - Epizootiology of Forest Insect Viruses.

Modelling and the role of passive carriers.

FUNGI - Fungi, *in vitro* Cultivation and Virulence.

Production, field use, virulence, effectiveness, all related to strains; bioassay covering the major fungal groups.

GENETICS - Advances in Genetic Studies with Pathogens of Invertebrates.

Aspects of genetics, genetic improvement, gene expression with bacteria, viruses and fungi.

MARINE - Marine Invertebrate Pathology.

New diseases in molluscs - x parasitosis, haemocytic neoplasia. Diseases of shell fish, crustacea and flukes, etc.

PERSISTENCE - Environmental Persistence of Pathogens.

Persistence of viruses, bacteria, fungi and protozoa in soil and water, and on plants.

UNUSUAL-VIRUSES - Unusual Viruses of Terrestrial and Marine Invertebrates.

Viruses except NPVs, GVs and CPVs (but including non-occluded NPVs). Also papers on viruses of bees and parasitoids.

WHO-SYMPOSIA - Aspects of diseases of vectors of human disease and use for control, mainly by participants in WHO's "Special Programme".

Provisional Programme*

Sept. 1982	9.00-10.30	11.00-12.30	14.00-15.30	16.00-17.30		Evening
Sun. 5th	S.I.P. Council	S.I.P. Council	S.I.P. Council Registration	Registration		Mixer Registration
Mon. 6th	(PLENARY) Welcome Keynote address	GENETICS APPLICATION	GENETICS APPLICATION Marine	Bacteria Marine Microbial- control Division		Safety Division
Tues. 7th	DEFENCE CONTROL Fungi	DEFENCE CONTROL Fungi	Defence Protozoa Virus Entomophora- discussion	Miscellaneous Nematodes Virus 16.00-17.00	SIP AGM 5.00- 7.00	Brighton Pavilion Reception 8.00
Wed. 8th	UNUSUAL- VIRUSES Bacteria Defence Protozoa	UNUSUAL- VIRUSES Bacteria Defence	FREE AFTERNOON			FREE
Thurs. 9th	WHO-NEMATODES FUNGI DIAGNOSIS	WHO-PROTOZOA FUNGI DIAGNOSIS	WHO-FUNGI MARINE Virus	WHO-FUNGI MARINE Virus		Reception and Banquet
Fri. 10th	WHO-BACTERIA PERSISTENCE Virus	WHO-BACTERIA PERSISTENCE Fungi	WHO-BACTERIA FOREST VIRUS Marine- workshop	WHO- MISCELLANEOUS Genetics Marine- workshop		FREE

* Capitals = symposia (See page 2 for key), small letters = offered paper sessions. Poster sessions will run concurrently according to numbers received. In addition to sessions marked "marine", other sessions; e.g., UNUSUAL VIRUSES, will have papers of interest to marine invertebrate pathologists.

TRAVEL ASSISTANCE

The amount of the Travel Grant, if any, for the IIIrd International Colloquium on Invertebrate Pathology and the XVth Annual Meeting of the Society for Invertebrate Pathology, Brighton, U.K., September 5-12, 1982, has not yet been decided. Grant applications by SIP to the International Union of Biological Sciences and the U.S. National Institute of Health are pending a final decision by those agencies. In anticipation of funding for air fare only, the Travel Committee for the SIP requests that interested individuals obtain applications for Travel Assistance from John D. Briggs, SIP-ICOIP Travel Committee, Ohio State Univ., Columbus, Ohio 43210 USA.

All applications received will be considered for support. Restrictions placed on the funds by the granting agencies will be respected. Priority in selection is expected to be given to individuals who are active in research in invertebrate pathology or comparative pathology; have junior standing in their institution; and who are without adequate travel funds and intend to meet the additional costs of participation in the colloquium.

John D. Briggs

BRITISH MYCOLOGICAL SOCIETY SYMPOSIUM
ON ANIMAL-MICROBIAL INTERACTIONS
University of Exeter, 14-17 September, 1982

For those intending to come to the SIP meeting in Brighton 1982, some may be interested to know that the British Mycological Society is holding a symposium at the University of Exeter, 14-17 September, 1982, on the subject of Animal-Microbial Interactions. The aim of the symposium is to integrate aspects of research in mycology, bacteriology and animal ecology. A major theme of the symposium will, therefore, be multidisciplinary discussion structured around the following topics:

1. The role of microorganisms in invertebrate guts;
2. Microorganisms as a source of food;
3. The role of animals in the dispersal of microorganisms;
4. Interactions between animals and microorganisms in decomposition processes and,
5. Parasitism, predation and biological control.

Anyone interested in attending or contributing (there will be a poster session also) should contact, without delay, Dr. J.M. Anderson, University of Exeter, Dept. of Biological Sciences, Hatherly Laboratories, Prince of Wales Road, Exeter, EX4, 4PS, UK.

ISDCI CONFERENCE ON INVERTEBRATE IMMUNOLOGY
University College of Swansea, Wales, U.K
August 31st - September 4th, 1982

This conference will be held at the University College of Swansea during August 31st - September 4th, 1982 and will be jointly sponsored by the International Society for Developmental and Comparative Immunology and the University of Wales. Two main topics will be covered, namely "Immunorecognition in Invertebrates" and "Recent Developments in Invertebrate Haematology". Papers not directly related to these subjects are also welcome and will be grouped together in a separate session. Both invited and open papers will be presented in the two main symposia given above. For further information please contact Dr. Andrew F. Rowley, Department of Zoology, University College of Swansea, Singleton Park, Swansea, SA2 8PP, Wales, U.K.

SIP MEETING WITH AIBS AT PENNSYLVANIA STATE UNIVERSITY
University Park, PA, August 8-11, 1982

The program will include: (a) symposia on genetic manipulation of pathogens (primarily baculoviruses), entomopathogenic fungi (with the Mycological Society of America), and diseases of invertebrates other than insects; (b) a workshop on the status of EPA's guidelines for evaluating safety of insect pathogens; (c) a demonstration (probably via posters) of current commercial microbial products and application equipment; (d) contributed 15 minute papers; and (e) contributed posters.

The deadline for submission of contributed papers and posters is March 1st. Please use the standard SIP abstract form and send to Donald W. Roberts, Insect Pathology Resource Center, Boyce Thompson Institute, Tower Road, Cornell University, Ithaca, NY 14853 USA. Materials submitted late will not appear in the AIBS Meeting Program, but we will try to provide space and time for late submissions. In most cases, however, late contributed papers will not be grouped with other papers of the same topics; so meeting the deadline is important for a cohesive program and to placing your contribution in its most appropriate time slot.

A flyer with registration and housing forms is being printed by AIBS and will be sent to North American (NA) SIP members in the near future. Housing in dormitories will cost approximately \$9 single and \$8 per person for double occupancy. Campsites are available in a nearby town. Registration will be approximately \$40.

University Park is located in the center of the state of Pennsylvania, and therefore is within one-day's driving time for many SIP members. This will afford an excellent opportunity to include a more than the usual complement of postdoctoral fellows, students, and technical assistants in our meeting. Air transportation into University Park is limited in capacity (although larger-than-usual aircraft may be added to accommodate the increased meeting traffic), so if you are flying, make your reservation as soon as possible. SIP activities will begin Sunday evening (Aug. 8) and we hope to terminate by noon Wednesday (Aug. 11). Questions on local arrangements should be directed to William G. Yendol or William J. McCarthy, Pesticide Research Laboratory and Graduate Center, Pennsylvania State University, University Park, Pennsylvania 16802.

We are looking forward to an exceptional NA meeting and to seeing many of our NA SIP members there.

OTHER MEETINGS

6TH INTERNATIONAL CONGRESS OF ACAROLGY 5-11 Sept. 1982 Univ. of Edinburgh, Scotland. (D.A. Griffiths, Ministry of Agriculture, Slough Laboratory, London Road, Slough, Berks, UK).

THE 1982 ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL MICROBIOLOGY will be held August 8-13 at the University of Minnesota, St. Paul, MN. The program will include symposia on agricultural biotechnology, biotechnology of pharmaceuticals and health care products, biotechnology of chemical products, process development for biotechnology, genetics of food microorganisms and subsurface microbiology. For more information contact Ms. Ann Kulback, Society for Industrial Microbiology, 1401 Wilson Blvd., Arlington, VA 22209, or call 703/256-0337.

33RD ANNUAL MEETING OF THE TISSUE CULTURE ASSOCIATION will be held at the Town and Country Hotel, San Diego, CA on June 6-10, 1982. For information contact Tissue Culture Assoc., Business Office, 1 Bank Street, Suite 210, Gaithersburg, MD 20878.

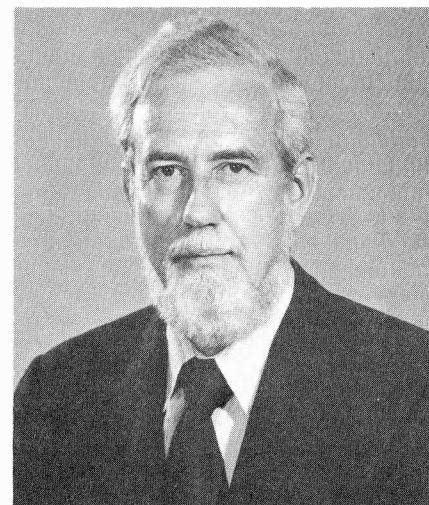
PARASITIC HYMENOPTERA TRAINING SESSION III: The Maryland Center for Systematic Entomology announces the third short course in parasitic Hymenoptera will be held 7-14 June 1982 in the Dept. of Entomology, Univ. of Maryland. For details contact Charles Mitter, MCSE, Dept. of Entomology, Univ. of Maryland, College Park, MD 20742.

MEMBERS IN THE NEWS

USDA SCIENTIST NAMED
ASSOCIATE REGIONAL ADMINISTRATOR:

PEORIA, ILL.--ROBERT A. RHODES, former Assistant Director at the Northern Regional Research Center, has been named Associate Regional Administrator for USDA's Agricultural Research Service, North Central Region, headquartered here.

Rhodes began his scientific career 27 years ago as a microbiologist and progressed to positions of project leader, investigation head, research leader and, in 1976, assistant Center director.



Dr. R.A. Rhodes

As a scientist, manager, and administrator, Rhodes has special knowledges that will benefit the NCR team operation, said Paul J. Fitzgerald, regional administrator. "He adds a valuable dimension to our administrative management team because of his broad experience as a scientist and science administrator and for special talent in budget development, research evaluation, biosafety and matrix management," Fitzgerald said.

Rhodes holds B.S., M.S. and Ph.D. degrees from the University of Wisconsin in bacteriology, chemistry and biochemistry. He is author of more than 33 publications and inventor of several patents. He is a member of the American Society for Microbiology, American Association for the Advancement of Science, Society for Invertebrate Pathology and Sigma Xi.

Rhodes and his wife Nancy are the parents of three children: Katherine, Rebecca and Christopher.

KARL MARAMOROSCH, professor of microbiology at the Waksman Institute, Rutgers University, received the 1981 Annual Award of the Association of Asian Indians in America, in appreciation of his abiding interest in India. Dr. Maramorosch was given a plaque at the 9th Annual Dinner of the Association, held at Long Branch, New Jersey on August 23, 1981. The Association of Indians in America provides a forum for common action to all whose Indian heritage and American commitment offer a bond of purposeful unity.



Prof. Karl Maramorosch

DR. H.C. "CHAPPIE" CHAPMAN has retired and is also resigning from SIP after eight years as a member in good standing.

The membership committee received requests from Dr. J.M. Franz and Dr. Darrell Anthony for emeritus member status. Both retired in 1981. The membership committee reviewed their records and found that both met all requirements for emeritus status as specified in the constitution. Their qualifications were verified by Secretary O.N. Morris, and both have been granted emeritus status. Congratulations and thanks to both Dr. Franz and Dr. Anthony for many years of good and faithful service to the Society and to the field of invertebrate pathology.

We regret to report the sudden death of DR. GORDON BUCHER, Canada Department of Agriculture, Winnipeg, Manitoba on February 1, 1982. Dr. Bucher was a Founding Member of the Society for Invertebrate Pathology. Our deep sympathy and sincere condolences to Mrs. Bucher and family.

MISSING MEMBERS

The present address of the four SIP members listed below is not known. Our Treasurer, Dr. James D. Harper, Department of Zoology-Entomology, Auburn University, Auburn, Alabama, 36848, USA, would appreciate any information about their present location if anybody happens to know these members.

R. Liaison
John S. Roberts
Chihiro Ayuzawa
Maria da Gloria Sampaio Gomes

POSITION AVAILABLE

Graduate Assistantship: Beginning July, 1982, leading to M.S. or Ph.D. in Entomology. Recipient will be involved in research on microsporidian parasites of mosquitoes. \$5,200/year (M.S.) or \$6,400/year (Ph.D.), and waiver of out-of-state tuition. Send curriculum vitae, transcripts, G.R.E. scores and statement of research experience to D.W. Hall, Dept. of Entomology and Nematology, 3103 McCarty Hall, Univ. of Florida, Gainesville, Florida 32611, (904) 392-1901.

1981 SIP MEETING ABSTRACTS

Copies of abstracts of papers presented at the 1981 SIP Annual Meeting held at Bozeman, Montana are available from Treasurer James D. Harper while they last at a cost of \$2.00 U.S. to cover the cost of printing and mailing.

NEW BOOKS

"BIOLOGISCHE SCHÄDLINGSBEKÄMPFUNG" - BIOLOGICAL CONTROL, 3rd. ed. Franz., J.M. and Krieg, A., Paul Parey Verlag, Berlin and Hamburg, Federal Republic of Germany 1981. 252 pp. DM 34.00

This work provides basic informations and an up-dated report about the success of biological control methods and biotechnical methods as an integral part of pest management. Although most of the investigations have been done with biological control of insect pests, the use of pathogens against other noxious invertebrates, vertebrates (rodents), plants (weeds), and dangerous microbes (pathogens of plants, animals, and man) has also been considered. The book is divided in 17 chapters: (1) Population dynamics, (2) Non-biological methods, (3) Special character of biological methods, (4) Use of vertebrates, (5) Use of arthropods, (6) Use of other invertebrates, (7) Biological control of weeds, (8) Autocidal control methods, (9) Microbial control - basic informations, (10) Microbial control of arthropods, (11) Microbial control of other invertebrates, (12) Microbial control of vertebrates, (13) Microbial control of weeds, (14) Microbial control of pathogens, (15) Biotechnical methods, (16) Integrated control, (17) A retrospective and a prospective view; Glossary and Register. The chapters (9-15) concerning microbial control and biotechnical methods are written by KRIEG, the others by FRANZ.

INTERNATIONAL JOURNAL FOR PARASITOLOGY. Sponsored by the Australian Society for Parasitology and published bi-monthly by Pergamon Press for the Australian Society for Parasitology. Editor-in-Chief: J.F.A. Sprent, Department of Parasitology, University of Queensland, St. Lucia, Brisbane 4067, Australia.

Aims and Scope

The International Journal for Parasitology serves as a medium for communication between parasitologists at an international level.

It publishes original research papers dealing with parasites, parasitism and parasitic infection.

Other features include news items, reports of meetings, and a Parasitological Calendar which lists forthcoming meetings and symposia.

A selection of recent papers

Polyacrylamide gel electrophoresis in the differentiation of Taenia (Cestoda) by total protein, C.C. Bursley, J.A. McKenzie and M.D.B. Burt.

Carbohydrate energy metabolism in Fasciola gigantica (Trematoda), G.M. Umezurike & A.O. Anya.

Comparison of stain reactions in different cyclical stages of haemoproteids and haemogregarines, F.E. Ahmed & A.H.H. Mohammed.

Identification and quantification of some elements in the hog roundworm, Ascaris lumbricoides suum, and certain tissues of its host, A. Greichus & Y.A. Greichus.

Apical end organ structure and histochemistry in plerocercoids of Proteocephalus ambloplitis, J.R. Coggins.

Effect of thiamine deficiency on the filarial infection of albino rats with Litomosoides carinii, R. Prasad et al.

Regulatory properties of a partially purified preparation of pyruvate kinase from Fasciola hepatica, C.A. Behm & C. Bryant.

Catabolic metabolism in Trypanosoma cruzi, G.W. Rogerson & W.E. Gutteridge.

Peroxide metabolism in the cestodes Hymenolepis diminuta and Moniezia expansa, J.M. Paul & J. Barrett.

Strongyloides ratti: susceptibility to infection and resistance to reinfection in inbred strains of mice as assessed by excretion of larvae, H.J.S. Dawkins et al.

Annual Subscription (1982)	US \$175.00
Special Membership Price	US \$25.00

Members of the Society for Invertebrate Pathology can subscribe at the special membership price of US \$25.00. Orders at the reduced rate may be placed either with the Australian Society for Parasitology or with Pergamon Press.

Free specimen copy gladly sent on request.

THE INSECT PATHOLOGY LABORATORY
BELTSVILLE, MARYLAND, U.S.A.

The Insect Pathology Laboratory was organized almost 25 years ago to conduct investigations into the fundamental nature of insect diseases. In line with the terminology in vogue in the Agricultural Research Service at that time it was designated a "Pioneering Laboratory" and the research objectives given in the charter were to "determine the mode of action of these organisms so that the most informed and effective use may be made of them in the biological control of destructive insects...." In addition there was to be research to devise means of culturing them in quantity, for preliminary testing in the field by insect pathologists and entomologists. The scientists were also to be available for consultation with other personnel of ARS and other agencies on subjects within their various specialties concerning insect microbiological problems. This latter function has quite often been in relation to problems with diseases in insect rearings.

C.G. (Hank) Thompson was the first Laboratory leader and among the first staff members was Sam Dutky who had already gained acclaim and an international reputation for the development of the milky disease for the control of the Japanese beetle and was then working on the DD136 nematode-bacterial disease-complex.

In 1960, Hank Thompson transferred to the U.S. Forest Service and in 1961 Art Hiempel became the research leader for the Laboratory. Under his leadership the research effort developed around studies of the bacterial and viral pathogens of insects. Important findings were made in defining the mode-of-action of the crystal toxin in Bacillus thuringiensis, the development of insect cell culture systems for the study and production of insect viruses, and the ultrastructural studies of virus replication.

In 1972, as a result of an administrative reorganization "pioneering" was dropped from the Laboratory name but the charter to carry out basic research in insect pathology was retained. The same reorganization added Bob Whitcomb to the laboratory staff and expanded the research program to include mycoplasma and spiroplasma even though, at the time, these microorganisms were believed to be the pathogens of plants only. Subsequent research has shown that even administrative reorganizations are subject to serendipity as Spiroplasma now has been isolated from *Drosophila*, honeybees, ticks and other arthropods.

In 1979 Art Heimpel retired from his position as Lab chief and these duties were assumed by Jim Vaughn. In addition to his administrative tasks Jim continues his interest in cell culture research and the replication of insect viruses *in vitro*. Current research involves the study of the infection of cultured cells by viruses and includes a comparison of the process of invasion by the non-occluded and the occluded virions of the nuclear polyhedrosis viruses. The infection of cultured cells by the granulosis virus of the cabbage looper is being investigated by Ed Dougherty. In this study Ed has learned a good deal about the replication of this virus in its host insect but like other investigators has not yet seen any virus replication in cell culture. As the gypsy moth slowly moves toward Beltsville interest grows in improved ways to control this insect and Ed has begun a study on the biochemical characterization of several geographical isolates of the gypsy moth NPV. The goal of this study is to develop a more virulent virus strain than is currently being used.

George Tompkins has been investigating the effects of the host insect on the replication and virulence of NPV's. The study which began with the wild, uncloned virus from Autographa californica has been expanded to include other NPV's and a plaque purified strain of A. californica. Last summer the effectiveness of these viruses, produced in different hosts, was tested in small field plots. Jean Adams continues to provide outstanding electron microscope support not only for this project but for almost everyone else in the laboratory. Still she manages to carry on her own research which has been the identification of pathogens that are causing disease problems in insect rearings. One of her current projects involves a rhabdo-like virus that causes heavy losses in colonies of crickets reared for fish bait in the Southern U.S.

This year a new project was begun to develop pathogens for use in controlling several species of Coleoptera that are serious pests in the United States. Truman Clark joined the Laboratory staff and will have the lead role in isolating and evaluating the viral and bacterial pathogens from insects in this order. Plans to develop cell cultures for use in studying the isolated viral pathogens has been delayed until a replacement for Ron Goodwin can be hired. Ron's departure for the healthier climate of the Rockies' has also temporarily slowed our studies on chemically defined media for insect cell cultures. However,

Spiro Louloudes continues his studies on the metabolism of cells in culture and the effect of specific nutrients on viral replication in vitro.

The research on the bacterial pathogens of insects is concentrated on genetic studies of the Bacillus thuringiensis varieties. The goal of these studies is to identify the genetic mechanisms which control the production and specificity of the endotoxin. Bob Faust has examined many strains of B.t. to determine the number and size distribution of the plasmids each contains. Present emphasis is on B.t. var. israelensis and the isolation of the plasmids responsible for crystal formation in this variety. Phyllis Martin also joined our staff this past year. Phyllis is a microbial geneticist and the cloning and manipulation of these genes will be her research area. She is presently studying various methods of gene transfer in the bacilli.

Bob Whitcomb's studies on the spiroplasma now involve the taxonomy, biology and ecology of these microorganisms. He is actively involved in an international co-operative effort to develop a taxonomic system for the order Mollusca. The studies on the biology and ecology of the spiroplasma include the ability of leafhopper species to transmit plant pathogenic spiroplasma and the effect of in vitro cultivation on virulence. These studies may eventually provide a means of interrupting the plant to plant transmission by insects, thus protecting crops from these pathogens.

James L. Vaughn, Chief
Insect Pathology Laboratory

INSTITUTE OF VIROLOGY
THE NATURAL RESOURCES RESEARCH COUNCIL
Mansfield Road, Oxford, UNITED KINGDOM

The Institute of Virology is a component of the Natural Environment Research Council and is concerned with viruses in the natural environment. The work is both fundamental and applied. The Institute is housed in a laboratory custom-built for virology, unique in Europe. It is situated by Oxford University's Science Area. It has a field laboratory in mid-Wales.

The Institute developed from the internationally known Unit of Invertebrate Virology, whose roots go back to 1963. There is a staff of about fifty. Facilities are comprehensive, and include laboratories to Government approved safety standards, insect and animal rearing facilities, glasshouses, an electron microscope suite, analytical and preparative equipment and a specialist library. Current research fields are:

Insect Viruses

The Baculovirus group is of particular interest because it is unique to invertebrate animals. The replication of selected baculoviruses in cell culture is being elucidated on a comparative basis to produce viruses of known virulence and host range as pesticidal agents, and to gain a fundamental knowledge of their strategy of replication.

Three other groups of viruses from insects are studied - picornaviruses, split-genome viruses and single protein viruses. Some of these originate from wild insects, both native and foreign, others from laboratory maintained cultures. The viruses are adapted to growth in tissue culture cells, where their mode of replication can be investigated.

Virus Ecology

Detailed investigations of several insect/baculovirus associations have been in progress since 1971. The

objective of this research is to acquire fundamental ecological and epidemiological information. It is also relevant to the role of virus infections in the natural regulation of insect populations and to the use of viruses as pest control agents.

Viruses to Control Pest Insects

The Institute is actively involved in this exciting new field. Successful programmes exist for the control of forest pests, but the Institute's work has global relevance. For instance it is participating in studies on the control of cotton and coconut insect pests with viruses and has interest in projects in Egypt, Kenya, Malaysia, Seychelles and Papua New Guinea.

Viruses in Wild Birds

Several arthropod-borne viruses, especially bunyaviruses and orbiviruses, have been isolated at the Institute both from seabirds directly and from ticks found at their nesting sites. The properties of these virus isolates are being investigated. Such natural reservoirs of viruses are important because certain strains can cause infection in man and virus infection may also influence the population densities of the birds themselves.

Comparative Virology

Certain insect viruses have similar biochemical properties to viruses found in vertebrates. It is not known if these two sources of animal viruses have any biological properties in common. Research is directed towards establishing whether certain insect pathogenic viruses can infect vertebrate animals and cause disease.

Viruses of Trees and Wild Grasses

The Institute is concerned with trees and wild grasses used either for amenity or in short rotations for producing fibre and fuel. Methods of detection of viruses in such trees and grasses are being developed, so that factors influencing virus occurrence and distribution can be investigated. Basic studies are being made in relation to the assessment of the role of these viruses in plant health.

T.W. Tinsley
Director

FROM YOUR PRESIDENT

Elections are coming up and I hope all of you will vote. Our Nominations Committee worked hard and long, and has provided an excellent slate. The Chair's only complaint is that he wishes all the nominees could be elected! Remember that terms for Trustees are four years, and for officers, two years. Consider, too, that the Vice President is essentially a "President-Elect." For this reason our Vice President's name stands as sole nominee for President.

There are many ways members can serve SIP, other than through holding elective office. We have various standing and ad hoc committees and would like to maintain a list of those who would volunteer for committee service. We won't know who you are if you don't tell us. If you are interested in a specific committee, or would be willing to serve generally, please inform me, Vice President Brooks, or either Divisional Chairperson.

I hope many members will attend one or both of our 1982 meetings: The main meeting at the University of Sussex,

Brighton, England, or the supplementary US meeting at Pennsylvania State University, University Park. Who does not know that travel costs are rising and travel budgets plummeting? Nonetheless, don't miss these opportunities to meet your old friends and make new ones, and to keep up with the forefront of invertebrate pathology. For those members who have not attended our annual meetings--be assured that inveterate SIP-meeting attendees are an amiable group who would be delighted to make your acquaintance and hear about your research.

Phyllis T. Johnson

ELECTIONS OF SIP OFFICERS
1982-84

The slate of nominees for the offices of the SIP Council for the 1982-84 term (1982-86 in the case of trustees) is given below. The biographies of the nominees are given following the slate.

The ballot and an envelope for the ballot are enclosed. Please seal the marked ballot in the enclosed envelope. DO NOT MARK ANYTHING ON THE BALLOT ENVELOPE. Mail the sealed ballot in another envelope to Secretary Oswald Morris. Be sure to write your name on the mailing envelope.

Also, on the same ballot you are requested to vote on the issue of whether printed abstracts of SIP annual meetings be considered published and citeable sources. The ballot is self explanatory. We hope that you will exercise your vote in resolving this matter.

Sardar S. Sohi, Editor
SIP Newsletter

Slate of Nominees

President	W. Brooks
Vice President	K. Aizawa H.D. Burges
Secretary	J.R. Adams M. Bergoin
Treasurer	S.Y. Feng A. Rosenfield
Trustee	R.S. Anderson J.E. Henry L.A. Vasiljevic H. Watanabe

John C. Harsbarger, Chairperson
Nominating Committee

Biographies

President

Wayne Brooks

Education: B.S., Ph.D., 1966 (University of California, Berkeley).

Born: 1939

Experience: Asst., Assoc., and Professor, Department of Entomology, N.C. State University, North Carolina, USA, 1966-present.

Membership: SIP Division Committee; SIP Organizational Committee for Division on Microsporidia; Secretary, Division on Microsporidia, 1972-1976; SIP Permanent Program Committee, Co-chairman 1974-76; Secretary, SIP, 1976-78; Archivist, SIP' 1978-present; Committee to revise SIP Constitution and Bylaws, 1980-present; Entomological Society of America; N.C. Entomological Society, President, 1971; International Organization for Biological Control.

Interests: Microsporidia and other protozoa infectious for insects, protozoa as microbial control agents, general insect pathology.

Objectives: Promotion of microbials for use in integrated pest management systems and to enhance the growth of the Society by promoting interest in Society activities among the membership.

Vice President

Keio Aizawa

Education: Ph.D. (University of Tokyo).

Born: 1927

Experience: Professor of Insect Pathology, Institute of Biological Control, Faculty of Agriculture, Kyushu University, 1964-present; Insect Pathologist, Sericultural Experiment Station, Ministry of Agriculture and Forestry, Tokyo, 1950-1964.

Membership: SIP Trustee; Member, Subcommittee on Invertebrate Viruses, ICTV, Subcommittee on Genus Bacillus, ICSB, Scientific Committee, Colloquium on Insect Pathology and Microbial Control; Secretary, South and East Asian Regional Section, IOBC; Member, Editorial Board, Journal of Insect Pathology, Entomophaga, Intervirology.

Interests: General insect microbiology, microbial insecticides.

Objectives: Emphasis on the significance of invertebrate pathology and microbial insecticides in life sciences.

H. Denis Burges

Education:

B.Sc., Ph.D.
1956, (London University, UK).

Born: 1927

Experience: Assistant Experimental Officer, Experimental Officer, Senior Scientific Officer, Principal Scientific Officer, Glasshouse Crops Research Institute, Littlehampton, UK,



Dr. H. Denis Burges

1970 to present. Visiting worker for one year (1963-4) with the Invertebrate Pathology Group at Berkeley, California.

Membership: SIP member from its conception; Trustee, SIP Council 1976-present; Chairman of Nominations Committee, 1973; Chairman of Committee for Preservation of Bacterial Culture Collections; Member of the Organizational Committee for proposed Division on Safety of Invertebrate Pathogens; Organizational Committee for Division on Microbial Control; Member, Division for Microsporidia; Chairman of Steering Committee, Scientific Working Group for Special Programme on Biological Control of Vectors, WHO; Chairman of two study groups in the IOBC to produce advisory guidelines on safety, one on insect viruses and the other on bacteria; Member of three Committees formulating "Guidelines for Safety Testing Invertebrate Pathogens" for the UK, the European Economic Community and the WHO; Member of the Royal Entomological Society of London; Member of the Association of Applied Biologists (UK).

Interests: General insect pathology specialising in bacteria, fungi and microsporidia, the practical use of pathogens for pest control in greenhouses, food stores and against vectors; safety; standardization.

Objectives: Promote the use of pathogens in integrated pest control; encourage SIP to give leadership in the form of various activities and interactions with other organisations; stimulate international cooperation; regard invertebrate pathology as a whole, ensuring that all groups have fair coverage; organise a drive to increase membership.

Secretary

Jean R. Adams

Education: B.S., Ph.D. (Rutgers - The State University of New Jersey).

Born: 1928

Experience: Research Entomologist, U.S. Dept. of Agriculture, Insect Pathology Laboratory, 1962-present.

Membership: Society for Invertebrate Pathology, founding member; Sigma Xi; Entomological Society of America; Electron Microscopy Society of America; American Society for Cell Biology; New York Academy of Sciences; AAS; Washington Society for Electron Microscopy, Council Member 1976-1979, 1980-1983, Secretary-Treasurer 1976-1978, Secretary 1980-1983, Workshops Coordinator 1979; Maryland Entomological Society; Entomological Society of Washington; Poster Session Chm. BARC Symposium V Biocontrol; Local Arrangements Comm. Electron Microscopy Society of America (EMSA) 1982, Scientific Exhibits Chm. Natl. Mtg EMS 1982; American Registry of Professional Entomologists (Biological Control and Agricultural Entomology).

Interests: Pathogenesis of insect diseases in vivo and in vitro especially viruses and diagnosis of new diseases of insects.

Objectives: To increase awareness of our findings and interest in invertebrate pathology to our colleagues in the fields of microbiology, parasitology and entomology; to promote the use of microbial control where applicable in integrated insect pest management; to encourage cooperation among our invertebrate pathologists and exchange of microorganisms and techniques.

Max C. Bergoin

Education: M.S. 1962, Ph.D., 1966, D.Sc. 1973 (University of Sciences, Marseilles, France).

Born: 1939

Experience: Research Scientist of the National Center for Scientific Research (CNRS), Station de Recherches de Pathologie Comparée, Saint-Christol and Laboratoire de Pathologie Comparée, University of Sciences, Montpellier, France, 1964-present. U.S.P.H.S. Post Doctoral Fellow, Boyce Thompson Institute for Plant Research, Yonkers (N.Y.) 1969-1970. Assistant Professor of Microbiology, University of Sciences, Montpellier, France 1973-present.

Membership: Society for Invertebrate Pathology: Editorial Board, J.I.P. 1971-73; Trustee, 1972-74, Chairman programme Committee S.I.P. Meeting 1971. International Committee on Taxonomy of Viruses: member of the Invertebrate Virus Subcommittee 1970-present; member of the Executive Committee of I.C.T.V., 1978-present. French Society of Microbiology; French Society of Electron Microscopy.

Interests: Invertebrate virology: ultrastructure, pathogenesis, molecular biology and taxonomy of viruses infecting insects and other arthropods. Comparative chlamydiology.

Treasurer

Sung Yen Feng

Education: B.S. 1953 (National Taiwan University), M.A. 1958 (College of William and Mary), Ph.D. 1962 (Rutgers University).

Born: 1929

Experience: National Taiwan University, Department of Zoology, Teaching Assistant, 1954; College of William and Mary, Virginia Institute Marine Science, Research Assistant, 1955-57; Rutgers University: Department of Zoology, Teaching Assistant, 1957; Bureau of Biological Research Assistant, 1958; Department of Oyster Culture, Research Assistant, 1960-62; Department of Zoology and Oyster Culture, Research Associate, 1962-66; University of Connecticut: Biological Sciences Group, Assistant Professor, 1966-68; Associate Professor, 1968-74; Professor, 1974; Marine Sciences Institute, Assistant Director, 1972; Acting Director, 1976; Director, 1977-; Department of Marine Sciences, Acting Head, 1979-present.

Membership: American Society of Parasitologists; Society of Protozoologists; Sigma XI; New England Estuarine Research Society; Estuarine Research Federation; National Shellfisheries Association; Society for Invertebrate Pathology; American Society of Zoologists; Phi Kappa Phi; Member, Nominating Committee, Society for Invertebrate Pathology, 1968-1969; Member, Editorial Board, Journal of Invertebrate Pathology, 1970-73; Secretary-Treasurer, New England Estuarine Research Society, 1972-74; Member, Nominating Committee, Division of Comparative Immunology, American Society of Zoologists, 1975; Member-at-large, Executive Committee, National Shellfisheries Association, 1976-77; Member, Publication Committee, 1975-79; Chairman, 1979-80; Chairman, Program Committee, 1980-81; Vice President, NSA, 1980-81; Member, Editorial Committee on Glossary Terms used in Invertebrate Pathology, Society for Invertebrate Pathology, 1976-present; Member, Editorial Advisory Board, Journal of Developmental and Comparative Immunology, 1976-80; Member, NOAA "Ocean Pulse" Physiology and Biochemistry Review Committee, 1979-present; Member, Marine Science/Maritime Academy Study Group, State of Connecticut Board of Higher Education, 1980-81.

Interests: Experimental Marine Invertebrate Pathology and Immunology; Physiological Ecology of Marine Molluscs; Ultrastructures and Functions of Molluscan Hemocytes; Pollution Biology of Marine Invertebrates.

Aaron (N.M.I.) Rosenfield

Education: B.S. 1950, M.S. 1951 (University of Massachusetts); Ph.D. 1960 (University of Texas).

Born: 1924

Experience: Teaching Fellow and Laboratory Instructor - Biology/Microbiology, Brandeis University, Waltham, MA 1951-1956; Project Leader - Invertebrate Tissue Culture U.S. Dept. of Interior, Boothbay Harbor, ME 1960-1962; Program Leader - Shellfish Pathology Oxford, MD 1962-1970; Laboratory Director and Chief, Pathobiology Division Oxford, MD 1970 to present.

Interests: Fish and shellfish diseases (infectious and noninfectious); Fishery Biology and Microbiology.

Objectives: To increase worldwide interest and understanding in the need to prevent or control disease epizootics, particularly as they affect marine and estuarine fishery resources and cultured species.

Trustees

Robert S. Anderson

Education: Ph.D. 1971 (University of Delaware)

Born: 1939

Experience: Head, Laboratory for the Study of the Phylogeny of Cancer and Immunity, Sloan-Kettering Institute for Cancer Research, 1974-present; Assistant Professor, Sloan-Kettering Division, Cornell University Graduate School of Medical Sciences, 1975-present; Associate, Sloan-Kettering Institute, 1973-present; USPH Post-doctoral Fellow, University of Minnesota, 1970-1973.

Membership: American Association of Immunologists, American Entomological Society, American Society of Zoologists, New York Academy of Sciences, International Society of Developmental and Comparative Immunology, Philadelphia Physiological Society, Society for Invertebrate Pathology, Society of Sigma Xi, Division of Comparative Immunology, ASZ, Program Officer (1981-82); Editorial Boards: JIP, 1976-present; J. Develop. Compar. Immunol. 1977-present.

Interests: Comparative immunology; effects of xenobiotics on immune competency of marine invertebrates; general invertebrate pathology, inflammatory responses in lower animals, evolutionary aspects of chemical carcinogenesis, metabolism of environmental oncogens by invertebrates.

J.E. Henry

Education: AB 1959 (San Jose State University, California); MS 1961 (University of Idaho); PhD 1969 (Montana State University).

Born: 1932

Experience: Research Entomologist, 1961-present, U.S. Dept. Agric., ARS, Rangeland Insect Laboratory, Montana State University, Bozeman, Montana

Interests: Pathology and microbial control of insects. Specifically the pathogenicity of microsporidian and viral infections in grasshoppers. Also, production, formulation, and field application of microbials for control of grasshoppers and crickets.

Membership: Society for Invertebrate Pathology: Secretary (1978-1980); Local Chairman, annual meeting (1981); Division for Microsporidia, Trustee (1970-1971), Vice Chairman (1974-1976), Chairman (1976-1978); Ad hoc Committee for formation of Division of Microbial Control (1979-1980); Entomological Society of America; Pan American Acridological Society; North American Council Representative (1977-1978); President-elect (1978-1981); President (1981-1984); International Organization of Biological Control, Western Hemisphere; Sigma Xi.

Objectives: Increasing the international prominence of SIP as the authority for invertebrate pathology and microbial control. Developing and supporting the kinds of activities, projects, etc., that will generate increased membership participation at meetings and in the affairs of the Society.

Ljubiša Vasiljević

Education: Ph.D. (University of Beograd, Yugoslavia)

Born: 1923

Experience: Research Scientist Phytopathology, Faculty of Agriculture, Beograd 1950-52; Insect pathology and silk-worm disease at Station de Recherches Séricicoles d'Alès, France 1953; Insect pathology and microbial control, Institute for Plant Protection Beograd 1954; Director of IPP Beograd 1964-present.

Membership: Serbian Society for Plant Protection; President of Yugoslav Union of Society for Plant Protection 1978-1982. Yugoslav Society for Microbiology; Society for Invertebrate Pathology; Member of the auditing Committee JOBC/WPRS/1981-1984.

Interests: Biological and integrated control in Plant Protection in Agriculture, particularly B. thuringiensis and viruses against insects.

Hitoshi Watanabe

Education: Ph.D. (University of Tokyo)

Born: 1929

Experience: Scientific Officer, Sericultural Experiment Station, Ministry of Agriculture and Forestry, 1954-1956; Assistant Professor, Faculty of Agriculture, University of Tokyo, 1956-1968; Assistant Specialist, Division of Entomology, University of California, Berkeley, 1969-1970; Associate Professor of Insect Pathology, Faculty of Agriculture, University of Tokyo, 1971-present.

Membership: Founding Member SIP; Nominating Committee, 1973; Editorial Board, JIP, 1976-1977; Japanese Society of Applied Entomology and Zoology; Japanese Society of Genetics; Japanese Society of Sericultural Science.

Interests: Resistance of insects to diseases, particularly virus diseases; pathogenesis of virus infection; epizootiology of virus disease in beneficial insects.

Objectives: To promote more international exchange of ideas for studies in invertebrate pathology.

OBITUARY

DR. FREDERICK BARRY BANG, who pioneered the practice of using marine biota in research into infectious diseases and disease processes, died Saturday, October 3, 1981 in New York Kennedy Airport of a heart attack. Dr. Bang was enroute to Sweden to deliver a lecture on his work with the horseshoe crab in detecting bacterial endotoxins.

Dr. Bang (64) was a charter member of the Society and a member of many other national and international organizations, and served on several research and advisory councils and committees. Born in Philadelphia, Dr. Bang was educated in Baltimore, graduating from the Johns Hopkins Medical School in 1939. He was honored with the Legion of Merit for his research into malaria in the Southwest Pacific. He was Cofounder of the Johns Hopkins Center of Medical Research and Training which studied cholera and tropical diseases on the India subcontinent. He joined the faculty of the Hopkins School of Public Health and Hygiene in 1946, and in 1953 was named Chairman of the Department of Parasitology. This department was expanded and renamed the Department of Pathobiology in 1955 to encompass his broad interests in tissue and cell culture and invertebrate pathology. He will be sorely missed.

Aaron Rosenfield

Preparation of Abstracts for offered papers

The Abstracts of the offered papers will be published as a volume and will be available at the time of the conference. A maximum of one camera-ready, typed page is available to each speaker. It should be prepared in the style used for abstracts for previous SIP meetings. The following are instructions for preparation of the abstract.

1. Use a typewriter, preferably electric, with a carbon ribbon. If such a typewriter is unavailable, use a typewriter with a fairly new black ribbon. Type size as in this circular.
2. Place the sample abstract form under a blank typing sheet and insert in the typewriter. The dark lines will show through the usual grades of typing paper.
3. Single space all typing. The title (caps), authorship and address (not caps not underlined), and text must be within the boxes as outlined on the enclosed sample form. Leave no top or left margin within the boxes. Type only within the space outlined on the sample form.
4. The Style Manual for Biological Journals, published by the American Institute of Biological Sciences, should be used as a guide to abbreviations and symbols. Proprietary and trade names must be accompanied, at first mention, by the established or generic names. When using abbreviations for compounds, the name must be spelled in full at the first mention.
5. REMEMBER! Your abstract will be printed exactly as submitted. Any smudges, errors, and misspellings on your copy will be evident also in the published Abstracts.
6. Poorly typed abstracts, unsuitable for direct reproduction, will be returned to the authors for retyping. Unless these abstracts are retyped promptly, they may miss the printer's deadline and may not appear in the published Abstracts.
7. Send the top copy of your abstract no later than April 30, 1982 to:

H.D. Burges or C.C. Payne,
Glasshouse Crops Research Institute,
Worthing Road, Rustington,
Littlehampton, West Sussex,
England BN16 3PU.

REGISTRATION FORM

IIIrd International Colloquium on Invertebrate Pathology
September 5th - 12th 1982

Please fill in a separate form for each person, and type or print.

1. REGISTRATION

Name _____

Institution _____

Street and City _____

Postcode/Country _____

Male _____

Female _____

Rates (please mark the appropriate box)

- £35 for early registration received before 30 April 1982
- £40 for registration after 30 April 1982
- £15 for student registration (please enclose proof of student status)
- £15 for accompanying person

Persons registering for individual days will be charged £10 per day exclusive of abstracts and proceedings.

2. ACCOMMODATION

(a) Please reserve the following accommodation at the University of Sussex
(please mark the appropriate boxes)

<u>Date</u> (September '82)	<u>Bed, and Breakfast</u> (on the following morning)	<u>Lunch</u>	<u>Dinner</u>	<u>Tea and Coffee</u>
Cost per day	(£10.24)	(£3.57)	(£3.80)	(£0.80)
SUNDAY 5TH	<input type="checkbox"/>	Not available	<input type="checkbox"/>	-
MONDAY 6TH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUESDAY 7TH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (a)	<input type="checkbox"/>
WEDNESDAY 8TH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THURSDAY 9TH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (b)	<input type="checkbox"/>
FRIDAY 10TH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TOTAL COST _____

- (a) Please book for Dinner only if you do not wish to attend the official reception.
- (b) Please book for Dinner only if you wish to attend the society banquet.

Please send this form to Dr C.C. Payne or Dr H.D. Burges, Glasshouse Crops Research Institute, Worthing Road, Littlehampton, West Sussex, BN16 3PU, United Kingdom. The registration fee, and accommodation deposit of £20 should be enclosed as a bankers draft in sterling (payable to "SIP Conference Account") or sent by transfer in sterling direct to the

"SIP Conference Account" (Account no. 70314012)

National Westminster Bank Ltd. (Bank Code 60-13-18),

52 High Street, Littlehampton, West Sussex BN17 5EB, United Kingdom.

The balance will be payable in sterling at the conference.

(b) I would like a list of hotels in the Brighton area

(c) I would like further details of self-catering accommodation

3. SOCIAL EVENTS

(a) I would like to attend the reception on 7 September

(b) I would like further details of the accompanying persons programme

4. PAPERS

I have submitted / enclosed an abstract for a paper or poster entitled:

Signed _____

Date _____