

# sip

# newsletter

---

## society for invertebrate pathology

---

Volume 15, Number 1  
February 1983

### SOCIETY for INVERTEBRATE PATHOLOGY

XVI ANNUAL MEETING

CORNELL UNIVERSITY

August 7-11, 1983

Cornell University is looking forward to welcoming you to the Sixteenth Annual Meeting of the Society for Invertebrate Pathology. This letter is intended to facilitate your planning; we hope it will also contribute to your comfort and your enjoyment of the area while attending the conference. Ithaca is within one day's driving time for many SIP members. This will afford an excellent opportunity to include more than the usual complement of postdoctoral fellows, students, and technical assistants in our meeting.

#### TRANSPORTATION

**CAR:** State highways leading into the city include Routes 13, 34, 79, 89, and 96. Interstate 81 comes within 35 miles of Ithaca and the New York State Thruway (Interstate 90) is less than 50 miles to the north. If you plan to arrive by automobile, please note this on your registration form and travel directions will be mailed to you along with your confirmation letter.

**AIR:** Tompkins County Airport, four miles from campus, is served by USAir and Empire Airlines. Limousine service from Tompkins County Airport to the Cornell campus costs \$5.50. Hancock International Airport in Syracuse is only 55 miles to the north with surface connections to Ithaca. Rental cars and Greyhound service is available between Ithaca and Syracuse. If you are planning to use a rental car, it is suggested that early confirmation be made as the demand is very heavy during the summer months. Some Empire aircraft into Ithaca are small, so it will be wise to make early air reservations also.

**BUS:** Bus service into downtown Ithaca is provided by Greyhound Bus Lines. Taxi service is available from the Greyhound terminal to campus; the fare will be approximately \$5.00.

#### REGISTRATION

Registration is scheduled from 12:00 noon - 10:00 p.m. on Sunday, August 7, 1983 at the Robert Purcell Union on the Cornell campus. It will continue on Monday from 8:00 - 5:00 p.m. at the same location. The conference will conclude on Thursday, August 11, late afternoon.

#### HOUSING

Conferees are invited to live on campus in our residence halls. Six buildings make up the North Campus Student Residences, the newest group of University houses. Two are high-rise buildings, each of which houses 190 persons; four are low-rise buildings, each accommodating 144 persons. The two high-rise buildings are equipped with self-service elevators; the low-rises are split level with stairs.

The buildings are contemporary both in terms of architecture and concepts for living. The houses are designed on a suite plan; each suit accommodates six residents in two double (2 twin beds) and two single rooms. A full bathroom and storage closet complete each suite. Six suites make up a unit that includes a small kitchen and living room. In addition, each house has a main living room with adjacent kitchen and laundry facilities. Single rooms are reserved on first request basis. All rooms are within walking distance of the meeting site. Families can be accommodated in a combination of adjoining singles and doubles. Accommodations include linen (two sheets, pillow and case, blanket, bedspread) and supplies (two bath towels, washcloth, small bar of soap, disposable water glass). Maid service is provided daily, Monday through Friday.

Room rates: Adult single occupancy....\$18.00/person/nite  
Adult double occupancy....\$13.25/person/nite  
Child (4-11 years).....\$ 9.00/child/nite  
Child (3 years or under)..Free (parents must supply crib)

Wake-up service is not provided; participants should bring alarm clocks or radios. The guest rooms are not air-conditioned, but summer weather is generally very pleasant in Ithaca, with comfortable days and cool evenings.

Information regarding lodging or meals may be directed to Cornell University Services. If possible, please make inquiry by mail as our phone lines are very busy and it may be difficult for you to obtain a line. However, should you find it necessary to call, the number is 607-256-6290.

#### OFF-CAMPUS ACCOMMODATIONS

Conferees desiring housing off campus must make their own arrangements. Listed below are area motels which are 1 - 2.5 miles from campus. Transportation to and from campus to motels will be the conferees' responsibility.

<u>Motel</u>	<u>Phone number</u>
Collegetown Motor Lodge	607-273-3542
Holiday Inn	607-257-3100

Howard Johnson's	607-257-1212
Ramada Inn	607-272-1000
Sheraton Inn	607-257-2000

Room rates for most area motels are approximately \$45.00 per nite.

MEALS

A meal plan has been planned to include dinner on Sunday, August 7, breakfast, lunch and dinner on Monday, breakfast and lunch on Tuesday, Wednesday and on Thursday. All meals will be served cafeteria style. There will be a choice of three to five entrees and wide selection of salads, vegetables, fruits, desserts and beverages. Unlimited seconds are available. The meal plan is guaranteed and is not refundable. No meals will be served on cash basis.

Meal package price: Adult.....\$41.30  
 Child (4-11 years).....\$20.65  
 Child (3 years or under)..Free

SOCIAL ACTIVITIES

An informal reception with snacks and a cash bar is planned for Sunday, August 7, 1983 in the 2nd Floor Lounge of the Robert Purcell Union from 7:30-9:30 pm. Admission is free to all registrants and guests.

On Tuesday, August 9, a Society banquet and dancing is planned at a local nite spot. Visitors to the area always enjoy this trip - plan to attend!

On Wednesday, August 10, a BBQ will be held at Taughannock Falls State Park. The park features one of the outstanding natural attractions of the northeast, Taughannock Fall. Exciting to behold, the 215 foot falls plunges through a rock amphitheatre whose walls reach 400 feet. In addition, you will have the opportunity to swim in Cayuga Lake, play softball or volleyball on the lawns or just relax and chat with colleagues.

---

SIP NEWSLETTER

The SIP Newsletter is produced four times a year by the Society for Invertebrate Pathology. Annual dues (U.S. funds) in the Society are: regular 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. Aaron Rosenfield, Oxford Lab., NOAA, Nat'l. Marine Fisheries Service, Oxford, Maryland 21654, U.S.A.

Council Officers of the Society are:

President	Wayne M. Brooks, USA
Vice President	H. Denis Burges, England
Past President	Phyllis T. Johnson, USA
Secretary	Jean R. Adams, USA
Treasurer	Aaron Rosenfield, USA
Trustees	Terry L. Couch, USA
	John E. Henry, USA
	Peter Lüthy, Switzerland
	Hitoshi Watanabe, Japan

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

TOURS

If enough interest is shown, a special tour and wine tasting will be arranged to Wagner Vineyards. Wagner Vineyards is located on Seneca Lake, about an hours drive through the beautiful fingerlakes countryside. The wine makers will take you on tour of the vineyards and winery, explaining the winemaking process. At the conclusion of the tour, samples of various wines will be offered for tasting. Look for the tour registration table when you arrive for conference registration.

ROAD RACE

A 5-km race will be held on campus, Wednesday, August 10. Special T-shirts are being prepared -- see enclosed registration form.

PARKING

Parking on campus is by permit only. Conference parking permits will be available at registration for 50¢ per car per day. Passes for campus bus service will be provided at no additional charge. Campus buses make a circuit of the campus every fifteen minutes. Maps of the bus routes and stops will be available.

DRESS

August in Ithaca is beautiful, with warm days and cool evenings. The campus covers over 700 acres so be sure to wear comfortable walking shoes if you plan to explore the many interesting sites on campus. Casual clothing is in order, with a sweater or light jacket for evening. The Finger Lakes area is very scenic, so you may want to bring a camera.

CHILD CARE

A list of babysitters will be available at registration. Participants will be able to make arrangements directly with sitters.

UNIVERSITY FACILITIES

At registration you will be issued an official University identification badge. This will allow you to use the athletic facilities (tennis courts, golf course, squash courts, swimming pools, locker rooms, etc.) during public access hours. If you plan to use the Cornell swimming pools you must bring your own swim suit; also, a swim cap is required. You will be able to use the libraries, student unions, and museums; participate in a walking tour of campus; visit the Cornell Plantations, with their renowned gardens and plant collections; tour the College of Veterinary Medicine; or drive to the world-famous Laboratory of Ornithology to walk through Sapsucker Woods bird sanctuary or to view the exhibits on display.

EMERGENCY INFORMATION

Gannett Health Center on the Cornell campus, is open from 8:00 a.m. - 4:30 p.m., Monday through Friday. At other times, persons requiring medical attention will be transported to Tompkins Community Hospital Emergency Room. If your family needs to contact you in an emergency, they can call Cornell Public Safety 24 hours a day at 607-256-1111. Public Safety WILL NOT take routine messages; only emergency phone calls, please! Other messages should be left at the Boyce Thompson Institute, (607) 257-2030, in care of either R. R. Granados or D. W. Roberts.

REFUND POLICY

The Society will refund advance registration fees (less a \$5.00 handling fee) for all cancellations received in writing or by telegram on or prior to Saturday, August 6, 1983. NO REFUNDS WILL BE GRANTED AFTER THIS DATE. Refunds will be mailed from the Society's campus office following the Annual Meeting.

Tentative Schedule, 1983 SIP Annual Meeting, Ithaca, New York

Sunday Aug. 7	Monday Aug. 8	Tuesday Aug. 9	Wednesday Aug. 10	Thursday Aug. 11
<u>a.m.</u>				
Council meeting	<u>Registration: 8am-5pm</u> <u>Plenary Session and Founders Lecture: 9-11</u> <u>Contributed Papers: 11-12</u> <u>Posters: 11-12</u>	<u>Business meeting: Microsporida Division 7:00-8:00 (Breakfast)</u> <u>Symposium: Comparative Defense Mechanisms of Invertebrates: 8:30-12</u> <u>Workshop: Entomophthorales 10:30-12</u> <u>Contributed Papers: 8:30-12</u>	<u>Symposium: Current Status of Insect Nematodes, 8:30 - 10:30</u> <u>Contributed Papers: 8:30-10:30</u> <u>SIP Business Meeting: 10:45-12</u>	<u>Symposium: Genetic Manipulation and Insect Pathogens, 8:30-12</u> <u>Contributed Papers: 8:30-12</u>
<u>p.m.</u>				
<u>Registration: noon-10 pm</u> Council Meeting	<u>Symposium: Bioassay of Insect Pathogens: Current Needs and Future Directions 1:30-5</u> <u>Posters: 1:30-5</u> <u>Contributed Papers: 1:30-5</u>	<u>Workshop: Microsporida Division: What is a Sporangium? 1:30-3:30</u> <u>Contributed Papers: 1:30-5</u> <u>Workshop and Business Meeting: Microbial Control Division: Formulation of Microbial Control Agents 3:30-5</u>	<u>Road Race 12:30</u> <u>Lakeside Activities and Picnic Supper</u>	<u>Symposium: Genetic Manipulation and Insect Pathogens (cont.) 1:30-4:30</u> <u>Contributed Papers: 1:30-4:30</u>
<u>eve</u>				
<u>Mixer: 7:30-9:30</u>	<u>Safety Workshop: 8-10</u>	<u>Cash bar: 7-8</u> <u>Banquet, music, and dancing 8-?</u>		

CALL FOR PAPERS AND ABSTRACTS - DEADLINE, APRIL 15/83

Papers for the Contributed Paper Sessions and Posters are being solicited. Those who intend to present papers are urged to prepare their talks carefully and confine the length of their reports so they do not exceed 15 minutes. Projection facilities for standard 2" x 2" (5.1 x 5.1 cm) slides will be available for the Contributed Paper Sessions.

Those requiring special projection equipment should notify the Program Committee at the time abstracts are submitted. Special audio visual equipment can be arranged. For Posters, the boards will be approximately 1.2 x 2.4 meters. Please plan to man your poster at least one hour. A sample blank with instructions on its back for preparing the abstracts is enclosed with this issue of the Newsletter.

REPORT ON DIVISION OF MICROBIAL CONTROL 1982 WORKSHOP

A Workshop on "Problems Related to Microbial Control in Developing Nations" was held at the International Colloquium on Insect Pathology and Microbial Control in Brighton, England, September 1982, under the auspices of the SIP Division of Microbial Control. The Workshop was opened by a short address from Dr. R.S. Soper (USA) outlining problems, advantages, and preferred modes of operating in international microbial control research. He was followed by addresses from Drs. B. Matamni (Nigeria), M.O. Odindo (Kenya), V.M. Pawar (India), R.A. Daoust (Brazil), and S. Singer (USA). In addition, many of the attendees (approximately 60 people) offered comments from the floor. Space will not permit a full account here of the comments and recommendations made at this meeting. In general, they could be placed in five major categories: 1) minor problems in working in developing nations; 2) limiting factors in conducting research in developing nations; 3) advantages of working in developing nations; 4) how we should conduct research in developing nations; and 5) recommendations on what our Division and Society could do to facilitate microbial control activities in developing nations. An outline of these comments is available from the workshop moderator upon request.

Among the limitations mentioned by the group were a lack of trained personnel, insufficient equipment, inadequate funding or support from international agencies, weak library services, lack of priority lists for pest control, no registration guidelines for microbial agents, and interference from vested interests such as insecticide merchandisers and the silkworm industry. It was felt that some of these problems could be addressed by our Division and Society. For example, we could conduct surveys in developing nations to demonstrate the current existence of promising microbial control agents, consciously include developing-nation students in our training programs and direct their training to the type of work they will be expected to conduct in their home nations, promote exchange of data and reprints between our laboratories and those overseas, arrange for donations of the Journal of Invertebrate Pathology and perhaps the Commonwealth Agricultural Bureaux Abstracts on Biological Control to a number of developing-nation laboratories, announce diagnostic services available to identify insect pathogens collected by developing-nations scientists, volunteer our time and resources to conducting research and training in developing nations. It was concluded that the construction of several lists would be helpful in organizing our efforts. The topics of the proposed lists are:

- 1) Specific research, development and/or training projects for which developing-nation governments or scientists wish collaborators.
- 2) Training opportunities for developing-nation scientists (including formal degree training or research-only training) in developed nations, or short courses which could be conducted in developing nations.
- 3) Diagnostic services available for the various pathogen groups.
- 4) Developed-nation scientists interested in participating in insect pathology and microbial control efforts in developing nations. Information needed will include the specialty of the scientist, language skills, time available, areas of geographic preference, and perhaps listing specific problems he/she would like to address.

The Insect Pathology Resource Center at Ithaca, New York will serve as the repository of these lists and make them available to interested parties. Those scientists interested in international activity are invited to submit information for any or all of the four lists to Dr. Donald W. Roberts, Insect Pathology Resource Center, Boyce Thompson Institute, Tower Road, Cornell University, Ithaca, New York 14853, U.S.A. In addition, further comments as to international activities of the Society and/or the Division of Microbial Control is invited. Please send these comments to the Division Chairman, James D. Harper, Department of Zoology-Entomology, Auburn University, Auburn, Alabama 36849, USA.

Donald W. Roberts  
1982 Moderator, Microbial  
Control Division Workshop

---

#### PRESIDENTIAL ADDRESS

When the Society for Invertebrate Pathology was organized, a part of its mission, as envisaged by its founders, was to improve communication and enhance broadness of understanding and knowledge of invertebrate pathology both among the members of SIP and biological scientists in general. SIP members have been interacting for fifteen years now, so we are in a position to think about how well we have informed each other, and how invertebrate pathology should be integrated into general biology, as it is not at this time. Vertebrate pathology isn't taught as such in basic biology courses, but themes based on it run through many formal courses in and out of biology, and we get informal instruction, too, every time we have a cold, or an epidemic of some childhood disease strikes our child's school, or our dog gets distemper, or bat rabies causes a scare in the neighborhood, or the price of beef goes up because of hoof and mouth disease somewhere in the world. In a very broad sense, we learn about mammalian disease with our mother's milk.

If invertebrate pathology has utility to biology, it should be integrated. We have come far enough that nowadays it would be difficult for an entomologist of whatever bent, not to know that insects get sick. An entomologist may then keep this fact in mind while pursuing work not related to pathology, but work that could be influenced by the fact that insects do get sick. The perception of the possibility of disease in experimental animals isn't general throughout biology, and even the enlightened entomologist may not always carry his awareness of insect disease over to other invertebrates. Thus, because an entomologist is sophisticated concerning insect

disease doesn't guarantee there won't be naive acceptance of statements made by other biologists who tend to use and perceive of their experimental invertebrate subjects as test tubes--a reprehensible practice in my mind. Actually, it wasn't too long ago that vertebrate people were just as bad. Let me give you an example.

In the days when the word "stress" called to mind vocal emphasis in pronouncing a word, or mechanical tension in a bridge, I was working in a well known Institute that studied things rickettsial, viral and medical-entomological. My job included determining, in mice, the relative virulence of newly isolated strains of scrub typhus. We had virulent and benign reference strains to use as controls. I was taken to task because in my tests, mice always survived a higher dosage of the virulent reference strain than did mice used in tests by the virology-rickettsiology department. These people offered to have one of their technicians watch me to determine where the breaks in my technique were occurring, and to show me how the tests should be run. But I knew (and I was proved right) that the reason for different results lay in the fact that in our naturalist-inclined entomology department, we did not overcrowd our mice, we kept their litter clean and dry, they had a natural light-dark cycle, and they were fed proper amounts at the proper times. Although we didn't give a biological meaning to the word "stress", we did realize our mice weren't just ambulatory incubators of rickettsiae. The virology department's mice lived under the worst of mouse-ghetto conditions. The virologists didn't include this fact in the methods section of their research protocols, nor did we in the entomology department ever state how our mice were treated. Neither group had realized the importance of this uncontrolled factor. The lesson is that a knowledge of existing or laboratory-instigated disease and stress in animals can be essential in assessing results of experiments. The picture has changed since the early 1950's in most vertebrate experimentation, and doubtless in much work with insects, but how many times do unsuspected disease and unrecognized stress in experimental invertebrates lead to inability to replicate experiments or to erroneous interpretation of data--sometimes on basic levels? More often than you would think, I imagine.

As a matter of altruism toward biological science and scientists, I believe we, as invertebrate pathologists, should encourage inclusion of information on invertebrate disease in basic courses in the biological sciences. Several years ago I attended a workshop on the future of invertebrate pathology. I twitted my academic colleagues there for not offering courses in invertebrate pathology. They pointed out to me (a relaxed member of a government lab) that development of courses in invertebrate pathology would be difficult and very demanding of time in schedules already strained to the limit with teaching, research, and the pursuit of funds, and perhaps in the end, unrewarding. This because students must take so many other courses considered basic to an understanding of biology that few would sign up for a course in invertebrate pathology. The consensus of the group was that it would be good to encourage inclusion of some information on invertebrate pathology in appropriate and more general biology courses. My colleagues also stated--somewhat cynically perhaps--that there are few people in our field or in our Society who have a broad knowledge of invertebrate pathology, or who feel it is necessary to be conversant with the field as a whole. They said, and they are correct, that we come from all walks of life--virology, immunology, entomology, protozoology, parasitology, veterinary medicine--you name it!

I reply here to these colleagues that despite our specialization and thus relative ignorance of the whole field of invertebrate pathology, we must see some things are of mutual interest. We must be aware that cross-fertilization of ideas takes place at our meetings, or we



would always be huddling in groups, discussing our separate specialties in sometimes obscure sessions at meetings of immunologists, virologists, shellfish biologists, entomologists, and so forth. We wouldn't be attending SIP meetings. It can't be mainly the attitude that there isn't anywhere else to go, because there are many other meetings. It must be because we fit together quite comfortably in invertebrate pathology meetings. Our exchange of ideas, first as strangers at meetings, and then as personally known colleagues, and the cooperative research that sometimes comes from all this, are of inestimable value to all of us. Those members not able to attend SIP meetings on a regular basis benefit, too, from the contacts made and ideas gained by their colleagues who do attend.

I take all this as an indication that we have a reasonably coherent discipline and that we have reason through our own example to assume that education in invertebrate pathology would be helpful not only to people working in or planning to work on some aspect of invertebrate pathology, but helpful to biological science as a whole. If time limitations prevent survey courses in invertebrate pathology--and I mean broad courses at an undergraduate level--why don't we push to have information on invertebrate pathology in standard biology courses and in biology texts? A little deeper instruction along the same lines would aid us, as practitioners of specialized aspects of invertebrate pathology, to understand and use our whole field.

Think of this: how many non-insect invertebrate pathologists are aware that in the 1920's Metalnikov suggested that neurosecretory phenomena might be involved in the insect immune response? This hypothesis was dropped later because it appeared that most phenomena Metalnikov found could be explained by other means. But now, experiments indicate that brain proteins, endorphins and enkephalins, influence the mammalian immune system and that B and T cells both appear to manufacture endorphins. Could a similar thing be happening in invertebrates? Perhaps it's a long shot, but I think people might prick up their ears. As well as thinking about insects--and maybe some insect pathologists are already doing so--there are many other invertebrates higher and lower on the evolutionary scale that might lend themselves to investigations along this line. Some graduate student, patiently counting bacteria in tunicate phagocytes, or analyzing enzymes in these cells, might be inspired to delve into this question in later years, if only he or she were aware of Metalnikov's thoughts. And what chance is there, at present, that the student would even know the name Metalnikov?

Let's not allow a tradition of vertical transmission of knowledge about invertebrate pathology. Some occupations almost force vertical transmission of knowledge--like practical work in a dark room. There, one generally is taught by a single individual and except for a few personal mutations, has no chance to change methods in response to the ideas and experience of others. Many people working on parts of invertebrate pathology today are in somewhat the same situation. They learn the specialty of their major professor, or the information immediately called for by their job, but broader concepts are harder to come by without time-consuming digging into the literature.

In a coldly practical vein: wouldn't it be helpful to invertebrate pathologists if biological administrators and reviewers of grant and contract proposals had learned basic invertebrate pathology at college, and had a better appreciation of its scope and worth?

To sum up, I have tried to make two major points. The first is that a general knowledge of invertebrate pathology should be in the possession of every biologist, and more detailed knowledge of invertebrate pathology--of all

the phyla--would help in cross-fertilization of ideas among people working in its various specialties. I believe our Society should promote both by pushing for inclusion of information on invertebrate pathology at least in basic biology courses, and by working toward inclusion of more detailed instruction in general invertebrate pathology for advanced students who plan to enter a specialty of invertebrate pathology, or who do thesis research on the subject.

The second point I'd like to make is this: Despite our diverse interests and training, SIP members benefit greatly from exposure to subjects outside their narrow specialties during our meetings, and by reading SIP Newsletter and Journal of Invertebrate Pathology. We are closer together in our discipline than perhaps some have appreciated. That is good, and should help to keep our Society strong. Many people here--perhaps all--can be said to work within two frames of reference. For example, that of immunology or protozoology or bacteriology on the one hand, and that of invertebrate pathology on the other. Both frames of reference are correct; both should be recognized. I hope each one of us may become even more aware of dependence on the other parts of invertebrate pathology, and never fall into a philosophical error exemplified by one chemist of my acquaintance who boasted that he made it through his university without being contaminated by even one course in biology.

Phyllis T. Johnson  
Brighton, September 9, 1982



John Briggs (left) and Phyllis Johnson presenting the plaque commemorating the Founder's Memorial Lecture (which honoured Kenneth Smith at the Brighton Meeting) to Claude Rivers.

#### MICROBIAL CONTROL DIVISION MEETING MINUTES, 1982

- (1) Dr. J. Harper, Chairman, called the meeting to order at 4:10 p.m. in the Molecular Sciences Lecture Room, University of Sussex, Brighton, on September 6, 1982.
- (2) Dr. Harper announced Secretary-Treasurer Dr. J. Fuxa was unable to attend the Colloquium and Dr. W. Gardner would take the minutes in his absence.

(3) Old business:

(a) Dr. Harper noted that the SIP Council approved on September 5, 1982 the creation of working subgroups within Divisions of the SIP. The results of a previous mail ballot from the membership indicated overwhelming support (84-3) of this action. The Safety Group will now become a working group within the Microbial Control Division. Means of handling business, dues, etc. for such work groups will be determined at a later date.

(b) No other old business when requested by Harper.

(4) New business:

(a) Harper asked for a report from the Nominations Committee consisting of Drs. C. McCoy and B. Federici concerning nominees for a new member-at-large to replace Dr. D. Roberts whose term of office is expiring. Dr. McCoy reported that the committee's recommendation was Dr. D. Pinnock. Harper asked for additional nominations from the floor. Dr. H. Kaya moved to close the nominations. Dr. R. Soper seconded. Dr. O. Morris moved to accept Dr. Pinnock as the Division's new member-at-large to replace Dr. Roberts. The motion was seconded by several individuals simultaneously and was passed unanimously by a voice vote.

(b) Harper announced that Dr. D. Burges, the chairman-elect, had requested that he be allowed to resign his post so that he might devote attention to his duties of President-elect of SIP. Harper asked the Nominations Committee to solicit names for a replacement (preferably an individual from outside the U.S.A.). A ballot will be mailed to members at a later date.

(5) Harper then turned the floor over to Dr. D. Roberts, organizer of the Division's first workshop entitled, "Problems relating to microbial control in developing countries".

W. Gardner  
For J. Fuxa, Division Secretary-Treasurer

---

A REPORT FROM THE DIVISION OF MICROSPORIDIA

The annual business meeting for the Division of Microsporidia was held in Brighton, England on 8 September, 1982. Dr. A.H. Undeen called the meeting to order at 11:00 a.m. and the minutes for the 1981 business meeting were read by Dr. J.E. Henry.

A report from the standing committee on Preservation of Invertebrate Pathogens, prepared by Dr. J.V. Maddox recommended additional research on storage of viable spores and transmission. Furthermore, the importance of cataloging collections of microsporidia and transferring collections to other depositories for storage was urged in the report. A recommendation was made to ascertain which European or Asian institutes might be willing to store viable microsporidian isolates.

A general discussion followed the report with Dr. A.H. Undeen offering to contact the American Type Culture Collection regarding user information for distribution to Division members. Dr. J.D. Briggs offered to prepare a report for submitting materials to the United States National Museum. Members were asked to prepare lists of microsporidia in their private collections. Dr. S.T.

Jaronski offered to coordinate this effort for the Division.

Dr. Undeen called for further standing committee reports and Dr. B.M. Pilley, Chairperson of the Computer Storage Committee stated she was no longer able to continue serving on the committee. After a general discussion, Dr. S. Jaronski made a motion to discontinue the Computer Storage Committee which was seconded by Dr. E.U. Canning and passed by the members.

The Nomination Committee presented a list of candidates for election as officers to the Division of Microsporidia. They were R. Barker, Chairperson; G. Wilson, Vice-Chairperson; D. Street, Secretary; and N. Alger and L. Malone, Council Members. Dr. J.E. Henry moved that nominations be closed which Dr. S. Jaronski seconded and was passed by the members unanimously.

Dr. A.H. Undeen called for any new business and Dr. W. Brooks asked about topic proposals for the 1983 workshop being organized by Dr. G. Wilson. A general discussion on possible topics followed and Dr. E.U. Canning suggested "What is a sporont?" as a topic. The meeting was adjourned at 11:50 a.m.

Douglas A. Street  
Division Secretary

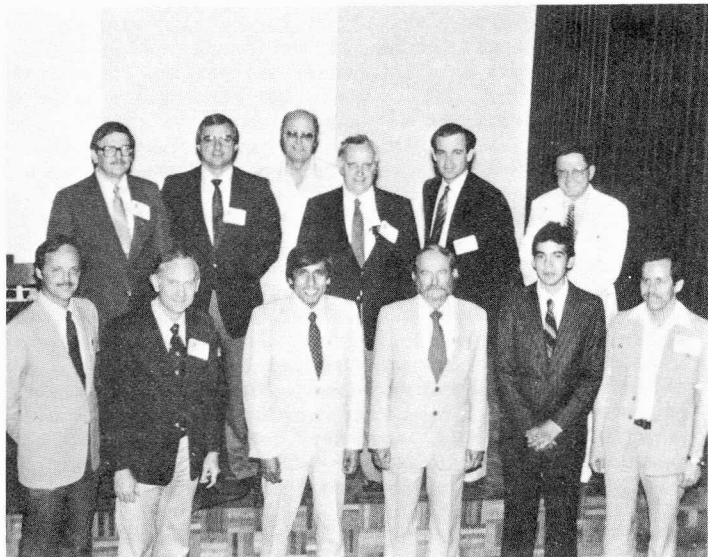
---

WORKSHOP ON MICROBIAL CONTROL OF INSECTS  
Monterrey, Mexico, April 19-22, 1982

A workshop on the utilization of microbial agents for insect pest control was convened in Monterrey, Mexico on April 19-22, 1982. This conference served as a means of consolidating and exchanging current information on microbes as pest management tools in the United States and Mexico. Eight U.S. senior scientists representing industry, the USDA, and Universities presented in papers on the current status of microbial control in the U.S. Likewise, twelve Mexican senior scientists discussed the progress with microbial pesticides in Mexico. The workshop was attended daily by approximately 125-175 persons. These included 30 to 40 qualified and trained persons from Mexican Institutions, the rest were university students and researchers interested in microbial control.

The Mexican government appears to be very interested in developing its bioinsecticide capability and is building a US \$2 million fermentation plant for *Bacillus thuringiensis* in Sonora, Mexico. However, it was evident that little had been accomplished in the utilization of microbial insecticides for insect control in Mexico. U.S. participants made preliminary arrangements for the exchange of promising insect microbes. Also, a list of Mexican insect pathology specialists was prepared. Some Mexican students were contacted for future training at U.S. universities. Recommendations for the future development and utilization of microbes for insect control (in the U.S. and Mexico) were developed and are available from the undersigned. Travel funds for the U.S. participants were made available by an NSF grant to the Insect Pathology Resource Center, Ithaca, N.Y.

Dr. Robert R. Granados  
Boyce Thompson Institute for Plant Research at  
Cornell University  
Ithaca, N.Y. 14853



United States and Mexican participants at the Workshop for Microbial Control of Insects, Monterrey, Mexico, April, 1982.

Front Row, L-R- Jim Harper (Auburn Univ.; Auburn, Al.), Wayne Brooks (N.C. State, Raleigh, N.C.), Bob Granados (Boyce Thompson Inst., Ithaca, N.Y. and U.S. Coordinator), Dieter Enkerlin (Monterrey Inst. of Technology and Mexican Coordinator), Daniel Villarreal (Student Representative - Monterrey Tech.) and E. Valenzuela (Sanidad Vegetal, Mexico).

Back Row, L-R- Don Roberts (Boyce Thompson Inst., Ithaca, N.Y.), Terry Couch (Abbott Labs, North Chicago, Ill.), Dick Soper (USDA, ARS, Ithaca, N.Y.), Howard Dulmage (USDA, ARS, Brownsville, Tx.), Biran Federici (U. Calif., Riverside, Ca.) and Andrew Arrata (Pan Amer. Center for Human, Ecology and Health, Toluca, Mexico).

---

VECTOR CONTROL RESEARCH CENTRE, PONDICHERRY, INDIA  
Indian Council of Medical Research

The Vector Control Research Centre (VCRC) is one of the permanent Institutes of the Indian Council of Medical Research (ICMR) and was established in the year 1975 with the objective of carrying out research on a continuous basis on all aspects of vector control which includes both innovative technology as well as giving a fresh look to the vector control strategies followed in the pre DDT era. The Institute has the following divisions:

1. Entomology, 2. Ecology, 3. Insecticides, 4. Biological Control, 5. Basic Studies, 6. Epidemiology and 7. Operational Research.

The Centre has a coordinated approach to solving vector borne disease problems in different parts of India. It has undertaken recently a Filariasis Control Demonstration Project through vector control, and a project on environmental control of vectors of malaria in rural areas in addition to its two field stations, one in Rameswaram and the other in Thiruvannamalai, to study problems of persistent malaria. The Centre is also a training ground for scientists from many Southeast Asian and African countries in the field of vector control, malaria and filariasis.

In Biological control, the larvivorous potential of many species of fishes found indigenously in and around Pondicherry were studied. The species studied were: *Oryzias melastigma*, *Gambusia affinis*, *Aplocheilus blochii*, *Rasabora daniconius*, *Tilapia mossombica*, *Etropolis maculatus*, *Etropolis suratensis*, *Therapon jarbua*, *Puntius sophera*, *Esomus barbatus*, *Macropodus cupanus*, *Liza parsia* and *Ophiocephalus* sp. While the different species had shown varying degrees of predation potential, only *Gambusia affinis* and *Poecilia reticulata* are amenable for mass culture and therefore are being extensively used in several studies. Another indigeonous fish *Aplocheilus blochii* has also been found to be a very good predator of mosquito larvae, with higher tolerance for salinity and pollution, but this species is not easily amenable to mass culture in captivity. However, this species is widely distributed in many ponds, paddy fields, irrigation channels, etc. In an extensive field trial carried out to control breeding of *Anopheles culicifacies*, the urban malaria vector in Pondicherry town, 3438 wells were seeded with *Aplocheilus blochii*, and malaria was effectively controlled. *Gambusia* is now being used in rural areas to control breeding of *Anopheles culicifacies* in casuarina pits. *Gambusia* is also being used in 5622 wells under the Filariasis Control Demonstration Project for the control of *Culex quinquefasciatus*.

Two predatory mosquitoes, *Toxorhynchites splendens* and *Culex (Lutzia) fuscans*, have been mass produced in this Centre. *T. splendens* has been introduced in several coastal villages of Pondicherry to control breeding of *Armigeres subalbatus*, a voracious biter of man, and *Culex quinquefasciatus* in containers which are used by villagers to soak coconut husks in coir manufacture and in which habitats no other control method is possible.

Regarding Insect Pathogens, the Centre has excellent facilities for carrying out indepth studies on all aspects of microbial agents.

**Fungi:** Two species of *Coelomomyces*, *C. indicus* and *C. anopheliesicus*, were found in the paddy field ecosystem and are being studied. Very recently success has been achieved in continuous culturing of *C. indicus* whose intermediate host has been indentified as *Mesocyclops hyalinus*. Several other fungal agents have also been isolated which include *Penicillium*, *Beaveria* and *Fusarium* and another unidentified aquatic fungus which has shown potential in preliminary tests.

**Bacteria:** So far 47 strains of bacteria have been isolated either from mosquito larval cadavers or from soil. They include *Bacillus thuringiensis* serotype H-14. This strain has been formulated as WDP which has a potency of 800 ITU/mg against *Culex quinquefasciatus* third instar larvae. Its toxicity has been found to be stable in storage and has been successfully used against natural population of mosquito larvae in many habitats with varying conditions of pH and salinity. Very recently it has been mass produced using jaggery (local sugar) as a medium in 100-litre fermentaters at the Central Drug Research Institute, Lucknow. There is also an indigenou strain of *Bacillus sphaericus*. Its virulence has been found to be less than the MR 4 strain of *B. sphaericus* from Sri Lanka. The Centre is now carrying out extensive studies on the Sri Lanka strain of *B. sphaericus*.

**Nematodes:** *Romanomermis iyengari* was isolated from mosquito larvae in paddy fields and this has been mass produced. This parasite cannot tolerate high pH, saline conditions and pollution. It has a high potential for use in other Southeast Asian countries and is at present in culture at Penang (at Dr. Yap's laboratory). Its potential use against *An. aconitus* breeding in paddy fields in Indonesia is being explored.

Protozoan parasites: *Nosema algerae* obtained from *An. stephensi* larvae was found infective also to *C.p. fatigans*, *Ae. aegypti* and *Armigeres subalbatus*. However, *T. splendens* larvae were refractory to infection. Significant reduction occurred in the number of oocysts and sporozoites of *Plasmodium vivax* in *N. algerae*-infected *An. stephensi*. In *Ae. aegypti* and *An. stephensi* infected by the microsporidian, partial suppression of the development of *P. gallinaceum* was observed. *An. subpicatus* and *C. sitiens* larvae from coir pits, were found infected by *Amblyospora* sp. Preliminary experiments indicate that it can survive under polluted conditions.

The Centre has excellent laboratory and library facilities and a new building has recently been constructed at a cost of over US \$1 million. The Centre has been recognised by the Madras University and the Poona University for the award of Ph.D. degrees for research. A proposal is also underway to start an M.Sc. course in Medical Entomology.

P.K. Rajagopalan  
Director, VCRC

---

#### POSITIONS AVAILABLE

Research Associate position available for 3 years to conduct laboratory and field research on diseases (primarily fungal) of the rice brown planthopper. Associate will reside in Los Banos, Laguna, the Philippines, and will work with the International Rice Research Institute and the Insect Pathology Resource Center/Boyce Thompson Institute. Ph.D. plus insect pathology postdoctoral experience is required. Salary will be \$14-20,000 (tax free for most persons, including US nationals), commensurate with appointee's experience. Send resumé and three references to Donald W. Roberts, Insect Pathology Resource Center, Boyce Thompson Institute, Tower Road, Cornell University, Ithaca, NY 14853 USA. Tel: 607-257-2030.

Assistant Professor of Entomology with a Ph.D. in Entomology required to teach, in Spanish, a graduate course on insect pathology, conduct research in insect pathology and supervise graduate student research. Salary according to experience and qualifications. Available immediately. Applications to include biographical data, list of publications and three letters of recommendation - to be sent to: Postgrado en Entomología, Departamento de Zoología Agrícola, Facultad de Agronomía, UCV. Apartado 4579, Maracay, Aragua 2101-A Venezuela.

---

#### FUTURE SIP MEETINGS

August 5-9, 1984. Davis, California, U.S.A.

Local Arrangements Chairman: Dr. H.K. Kaya,  
Department of Entomology and Nematology,  
University of California,  
Davis, California, U.S.A.

August 4-8, 1985. Sault Ste. Marie, Ontario, Canada.

Local Arrangements Chairman: Dr. T.J. Ennis,  
Forest Pest Management Institute,  
Canadian Forestry Service,  
P.O. Box 490, Sault Ste. Marie,  
Ontario, Canada  
P6A 5M7

The first annual meeting of the American Society for Virology (ASV) was held at Cornell University, Ithaca, New York on August 2-5, 1982. Over 1000 virologists attended including approximately 40 invertebrate virologists. Two afternoons and one evening workshops were held for the presentation of insect virus papers. The next annual meeting of the ASV will be held on July 10-14, 1983 at Michigan State University, East Lansing.

The principal aim of the American Society for Virology is to promote the exchange of experimental data and scientific information as well as stimulate discussion and collaboration among those active in the field of virology. All those who are actively engaged in research in some area of virology and who are more than three years post-Ph.D. are welcome to apply for membership, irrespective of the location of their laboratory. The Society holds an annual meeting that is open to members of the Society and their guests. For more information and membership application forms contact:

Dr. H. Alan Wood, Chairman  
Membership Review Committee  
Boyce Thompson Institute for Plant Research at  
Cornell University  
Ithaca, N.Y. 14853

---

#### 2ND INTERNATIONAL CONGRESS INTERNATIONAL SOCIETY OF DEVELOPMENTAL AND COMPARATIVE IMMUNOLOGY

The 2nd Internat. Congr. of the Internat. Society of Developmental and Comparative Immunology will be held at the University of California, Los Angeles, California U.S.A. on August 14-19, 1983. The Congress will precede the 5th Internat. Congr. of Immunology in Kyoto, Japan, August 21-26, 1983. The following Symposia will be held in Plenary Sessions:

1. Phylogeny of the Major Histocompatibility Complex.
2. Phylogeny and Ontogeny of Cellular Recognition Events.
3. Stem Cell Origin and Development.
4. Phylogeny and Ontogeny of Immunoregulation.
5. Phylogeny of Immunoglobulins.
6. Phylogeny of Mediators (Lectins, Agglutinins, Lysins, and Complement).
7. Phylogeny and Ontogeny of Host/Parasite Relationships.
8. Immunodevelopmental Processes and Aging.

These topics were arranged by the Organizing Committee, Drs. H. Ambrosius (GDR), E.L. Cooper (USA), A. Globerson (Israel), M.J. Manning (UK), V.R. Muthukruppan (India), M. Simonsen (Denmark), G.W. Siskind (USA), T. Sminia (Netherlands) and J.B. Solomon (UK).

Each plenary session will be followed by approximately two hours of parallel sessions for open papers. The official language of the Congress will be English. Wednesday, August 17, will be free for excursions in the Southern California area. Accommodation (modified American plan-room, breakfast, dinner) will be in the residence of the University of California, Los Angeles. The deadline for receipt of registration forms is April 1, 1983.

If you wish to participate and did not pre-register or receive your registration packet, please contact:

Dr. Richard K. Wright, Secretary, ISDCI  
Department of Anatomy, School of Medicine  
University of California  
Los Angeles, California 90024 U.S.A.



VI INTERNATIONAL CONFERENCE ON INVERTEBRATE TISSUE CULTURE  
Ponce de Leon Lodge, St. Augustine, Florida, U.S.A., June  
5-10, 1983

The VI Internat. Conference on Invertebrate Tissue Culture, will be held at the Ponce de Leon Lodge and Country Club, P.O. Box 98, St. Augustine, Florida 32084, U.S.A. on June 5-10, 1983. The 34th Annual Meeting of the Tissue Culture Association will be held at close-by Orlando, Florida on June 12-16, 1983. Thus, you can attend both the conferences with the transportation cost of one.

There will be five plenary sessions and several contributed paper workshops. All plenary sessions will be held from 9:00-12:00 Monday to Friday whereas the contributed paper workshops will be arranged for the late afternoons. Such a conference schedule will give you the opportunity to meet colleagues for detailed discussions, golf or swim or simply for rest. The following plenary sessions have been scheduled:

- i. Invertebrate cells for the production and study of vaccines, viruses, and microorganisms of medical and agricultural importance.
- ii. Morphogenesis, differentiation, and genetic analysis of invertebrate cells in vitro.
- iii. Production and action of invertebrate hormones in tissue culture.
- iv. Non-insect invertebrate cell cultures.
- v. Nutritional requirements and serum free culture of invertebrate cells in vitro.

If a sufficient number of papers justifies it, we project to have workshops on:

1. Cell hybridization and gene transfer.
2. New methods in invertebrate tissue culture.
3. Establishment of new continuous cell lines.
4. Insect cell lines for the production of pathogens.
5. Immunity systems and other defense mechanisms.

The program, the abstracts booklet and other documentation will be available at the Conference. A post-conference book will be published similar to Invertebrate Systems In Vitro (E. Kurstak, K. Maramorosch and A. Dübendorfer, eds., Elsevier/North Holland Biomedical Press, Amsterdam, 1980). The deadline for abstracts is March 1, 1983 and for manuscripts May 1, 1983.

Registration fee is US \$125.00 for participants and US \$50.00 for accompanying family member. There is no registration fee for children. Students would pay US \$60.00. During the Conference (June 5-10) registered participants and accompanying person will get the following special accommodation and meal rates at the Ponce de Leon Lodge:

Single occupancy . . . . .	US \$41.00/day
Double occupancy . . . . .	US \$46.00/day
Meals(3 meals/day) . . . . .	US \$30.00/day

You can have accommodation with or without meals, but you should make reservations early.

St. Augustine, Florida, is the nation's oldest city, founded in 1565 by the Spanish. It is the major resort area on Florida's Northeast coast. More than 40 miles of beautiful white sand beaches line the blue Atlantic Ocean. You will certainly enjoy the picturesque St. Augustine City, its museums, historic homes, old and narrow streets, fine restaurants and a resort atmosphere at Ponce de Leon Lodge and Country Club. Before or after the Conference, we suggest you visit the famous Orlando's Disney World, especially if you come with your family and project to stay some extra days in Florida. As mentioned above, the 34th Annual Meeting of Tissue Culture Association will be held at Orlando on June 12-16, 1983.

The Conference International Office is in Montreal, Canada. The Florida Local Organizing Committee consists of Dr. H. Oberlander, Insect Attractants Laboratory, USDA/SEA, Gainesville, Florida, USA (Chairman); Drs. S. Ferkovich, P. Greany, D. Hall, D. Lynn, J. Nation and Mr. C.E. Leach (Members). For further information contact Dr. Oberlander or the undersigned.

We are looking forward to the pleasure of seeing you at the Conference. Have a nice trip to Florida.

Edouard Kurstak  
Conference International Office  
Director-CVRG, Dept. of Microbiology  
Faculty of Medicine, Université de Montréal  
C.P. 6128, succ. "A", Montreal  
QUE, CANADA H3C 3J7

---  
A CALL FOR ARTICLES IN BIOSCIENCE

The Education Committee of ASP wishes to encourage the inclusion of more material on Photobiology in classical courses in Biology, as well the initiation and/or expansion of existing courses on Photobiology. This is obviously a problem of encouraging more teachers to teach more Photobiology. One approach is to assist them to become more knowledgeable in areas of Photobiology that are peripheral to their current areas of expertise, so that they will feel more comfortable about teaching these formerly peripheral areas of Photobiology. The type of review articles that appear in BioScience are very helpful in this regard. The Education Committee of ASP and the American Institute of Biological Sciences (the publisher of BioScience) encourage you to submit articles on the diverse areas of Photobiology for publication in BioScience.

Publishing an article in BioScience is an opportunity to communicate your ideas to thousands of professional life scientists and students of Biology. The readers span the entire range of the science, from the molecule to the society--microbiologists, botanists, zoologists and even interested laymen. A BioScience article should be interesting to this broad readership. The article should tell about the science, it cannot be the science. The paper should give an overview of the concepts and research, it is not the place to publish the primary data.

Effective articles often include diagrams, drawings and halftones. Detailed, complex tables should be avoided. Carefully selected references should lead an interested reader further, but since the article is not a detailed review for the fellow specialist, there is no need for a comprehensive survey of the original literature.

Readers are looking for an authoritative and interesting view of an area of research that is not their own. Often the reader's attention can be caught by an effective title, a well-written summary, and a first paragraph that moves briskly into the matter at hand. Readers are also helped by effective section headings. All BioScience articles will be reviewed for scientific content and for clear writing.

Your article should not exceed 5000 words (including space for illustrations). Please see a current issue of BioScience for "Information for Contributors".

## FROM YOUR PRESIDENT

Not very long ago many of us were thoroughly involved in society affairs at the 15th annual meeting in Brighton. But six months have already passed and plans for our next meeting in Ithaca are well underway (as evident in this issue of the Newsletter). And, while it is time for us to begin to prepare for this meeting, I am sure you will agree with me in again expressing our thanks to Drs. Denis Burges and Chris Payne, and their entire staff of assistants, for the extremely enjoyable and scientifically rewarding meeting they organized in Brighton. This was one of our larger and more stimulating meetings and served to emphasize that our Society has matured greatly during the past 15 years. We are now at a point where we can host and organize meetings comparable to meetings of the larger societies with which many of us are also affiliated. At the same time our small size allows us the opportunity of getting to know most of our fellow members and makes possible our active participation in the affairs of the Society. It is this last point that I wish to emphasize. I would be pleased to hear from anyone interested in serving the Society either on various standing or ad hoc committees or in the activities of our two divisions. I realize that we are all constrained by time, but certainly we can afford to participate at the annual business meeting of our Society. At most of our business meetings, however, member participation has been minimal. Thus, I encourage all of you to plan to attend the relatively short business meeting of our Society in Ithaca this year. Attendance will enable you to learn about Society activities and express your concerns or suggestions to members of the Council (as well as your colleagues). We welcome your attendance and participation!

During these past six months, I have tried to carry out the duties mandated by our original Constitution and Bylaws and the proposed revisions recently sent for approval by mail ballot. (Please be sure to return your ballot to Secretary Jean Adams by March 14, 1983.) I have appointed or re-appointed chairpersons and members of several standing and ad hoc committees. Dr. Jim Harper has agreed to chair the Nominations Committee and Drs. Howard Dulmage, Mauro Martignoni, and John Briggs have agreed to re-appointments as chairs of standing committees on Cultural Collection, Glossary, and Founders Lectureship, respectively. We have also established three new ad hoc committees. Dr. Phyllis Johnson will chair a committee on Membership and Journal Retention; Dr. Jim Fuxa will chair the Membership Committee; and Dr. Carlo Ignoffo will coordinate and Dr. Nelson Goodman will chair a committee on Research Alliances. This latter committee will serve as a tri-partite commission - composed of members from academia, government, and industry - whose objective will be to expedite research developments in invertebrate pathology. As many of you recall, Carlo, in his keynote address at the Brighton meeting, proposed a number of challenges to the Society, including one that implored us to promote and plan research that will continue to maximize our limited resources and personnel. Let's wish Carlo and Nelson success in their efforts to meet this challenge!

We must reverse the continuing decline in our membership. This decline is largely the result of the automatic loss of members at least two years in arrears for dues. Speaking of dues, I hope most of you have paid your dues for 1983 (perhaps even for 1982) by now. Have you? Getting back to membership, I am certain Dr. Fuxa and his committee will be making an extensive effort to recruit new members for our Society, and I encourage all of you to invite your colleagues to join our Society. At the same time I ask you to subscribe to the Journal of Invertebrate Pathology. We can prevent further increases in the subscription fee by encouraging more people to subscribe to our Journal. Despite the minor problems that some of us have had in publishing in the Journal, I am certain that we all agree that the Journal is valuable to our Society. Your support is essential not only to the financial well-being of the Journal but also to the stature of our Society!

I call your attention to a few other business matters of the Society. We are no longer affiliated with AIBS; our membership mailing list is now being maintained through the courtesy of the Boyce Thompson Institute for Plant Research at Cornell University. Our Treasurer, Aaron Rosenfield and especially, his temporary assistant Phyllis Johnson, have worked diligently with Dr. Don Roberts, our Permanent Program Chairman, to update this list and to ensure that the names and addresses on this list are accurate. Please report any problems directly to Dr. Rosenfield. Our 1984 meeting is scheduled to be held at the University of California at Davis, August 5-10, 1984, and our 1985 meeting (probably also in August) will be hosted by the Forest Pest Management Institute at Sault Ste. Marie, Ontario, Canada.

See you in Ithaca!

Wayne M. Brooks



Wayne Brooks (left) assuming the Presidency of SIP from Phyllis Johnson. Ozzie Morris enjoying the installation.

## ATTENTION

PLEASE NOTE THE FOLLOWING CHANGES/ ADDITIONS IN THE INFORMATION ON THE 1983 SIP MEETING:

### 1. Deadline for Abstracts

This issue of the Newsletter has been delayed because of an unavoidable delay in typing. The Program Committee has therefore changed the deadline for abstracts to April 30, 1983 instead of April 15 mentioned elsewhere in the Newsletter and on the Abstract Form.

### 2. Registration Fee for Students

Registration fee for students has been omitted from the Registration Form through an oversight. It is \$20.00 if paid before July 15, 1983 and \$25.00 if paid later.

-----

## PREPARATION OF ABSTRACTS

The Abstracts of the Annual Meeting of the Society for Invertebrate Pathology will be prepared by direct reproduction of the abstract submitted by each author. There will be no editing of the author's copy. Thus, every error which appears in the submitted abstract will also appear in the printed Abstracts. Please use the following procedure for the preparation of the abstract. If intended as a Poster presentation, please type "POSTER SESSION" at the bottom middle of the Abstract. Also, for Poster presentation please bring 50 copies of your Abstract for distribution at the session.

1. Use a typewriter, preferable electric, with a carbon ribbon. If such a typewriter is unavailable, use a typewriter with a fairly new black ribbon.
2. Place the enclosed 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, authorship, 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 printed 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 your abstract no later than April 15 to:  

Dr. Donald W. Roberts  
Insect Pathology Resource Center  
Boyce Thompson Institute  
Tower Road, Cornell University  
Ithaca, N.Y. 14853 USA
8. Enclose a self-addressed envelope or self-addressed postal card with your abstract if you wish acknowledgment of the receipt of the abstract.

title

authorship

affiliation

text



REGISTRATION  
SOCIETY for INVERTEBRATE PATHOLOGY

XVI ANNUAL MEETING

Cornell University  
Ithaca, New York  
August 7-11, 1983

Please print or type

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_  
(Include area code)

Registration fee if paid before July 15, 1983 - \$40.00      \$ \_\_\_\_\_

Registration fee if paid after July 15, 1983 - \$45.00      \$ \_\_\_\_\_

HOUSING:

Arrival Date: \_\_\_\_\_ Time: \_\_\_\_\_ Mode: \_\_\_\_\_

Departure Date: \_\_\_\_\_ Time: \_\_\_\_\_ (Dorm check-out  
time, 10 a.m.)

	no. nites	no. persons		
Single Occupancy - \$18.00/nite	X _____	X _____	=	\$ _____
Double Occupancy - \$13.25/nite	X _____	X _____	=	\$ _____
Child, under 12 - \$ 9.00/nite	X _____	X _____	=	\$ _____

No charge for child under 3 years, parent must provide porta  
crib, etc.

	no. persons			
Adult meal plan - \$41.30/person	X _____	=	\$	_____
Child meal plan - \$20.65/child	X _____		\$	_____
Adult BBQ - \$7.25/person	X _____		\$	_____
Child BBQ - \$4.85/person	X _____		\$	_____
Banquet - \$15.00/person	X _____		\$	_____

TOTAL CONFERENCE AMOUNT DUE      \$ \_\_\_\_\_

LESS \$50 DEPOSIT ENCLOSED      \$ \_\_\_\_\_

BALANCE DUE AT REGISTRATION      \$ \_\_\_\_\_

Please return this form with your check made out to Society for Invertebrate Pathology/  
Cornell University by July 24, 1983, to: Invertebrate Pathology  
Box 3 Robert Purcell Union  
Cornell University  
Ithaca, New York 14853

SIP 5 KM ROAD RACE

Wed., Aug. 10, 12:30 p.m., Ithaca, NY

\$5 entry fee - includes race cost plus T-shirt

Send entry form and fee to:

Dr. Lerry Lacy  
Insects Affecting Man and Animals Laboratory  
ARS-USDA  
P.O. Box 14565  
Gainesville, FL 32604

Check or money order payable to Society for Invertebrate Pathology.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

age group: under 35 \_\_\_\_\_  
                  over 35 \_\_\_\_\_

sex: M \_\_\_\_\_  
          F \_\_\_\_\_

T-shirt size (men's sizes): S \_\_\_\_\_ M \_\_\_\_\_ L \_\_\_\_\_ XL \_\_\_\_\_

I affirm that I am in proper physical condition to participate in this race and in consideration of the acceptance of this entry, hereby release sponsor, officials, and organizers of this race of all claims of injury or damage to person or property, including death, resulting from my running in this event.

\_\_\_\_\_  
Signature