

NEWSLETTER

society for invertebrate pathology

ASHEVILLE HOSTS OVER 300 PARTICIPANTS AT THE 1993 26TH ANNUAL MEETING

The 26th Annual Meeting of the Society for Invertebrate Pathology was held at the Great Smokies Hilton Resort and Conference Center in Asheville, N.C., August 1-6, 1993. Although the meeting was held in the Hilton, about 40 members were housed at the Best Western Central Motel whose participation was aided by free van transportation to and from the Hilton. There were 311 registered participants, including 47 companions, from 22 different countries.

The scientific program consisted of 9 symposia, 13 submitted paper or poster sessions and 2 workshops involving over 170 participants. The necessity for concurrent sessions was limited and, at most, only two

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sessions were conducted simultaneously. To avoid further division of interest, the two workshops sponsored by the Division on Microbial Control and the Division on Microsporidia were held on Monday and Tuesday evening, respectively. The Annual Business Meeting was held on Thursday morning and was well attended.

The social program included a mixer with abundant food and drink on Sunday evening, a 5-K race on the challenging track of the Hilton's golf cart path on Wednesday morning (the winners of which are announced in this Newsletter), a Wednesday afternoon excursion to Chimney Rock Park (attended by over 225 members and their companions), and a Thursday evening banquet at the Deerpark Restaurant on the estate of the Biltmore House followed by a candlelight tour of the House itself. Dessert and coffee followed in the Stable Cafe. There were approximately 300 participants for the banquet and tour.

Donations of \$9,250 (U.S.) were received from the following companies, listed alphabetically: ABBOTT LABORATORIES, BECKER MICROBIAL, BIOSYS, CIBA-GEIGY, CROP GENETICS, DUPONT, ECOGEN, ECOSCIENCE, ENTOTECH, MYCOGEN and SANDOZ AGRO. Appreciation is also expressed to the members of our Program and Local Arrangements

Don't Forget to Pay Your 1994 Dues

Dues notices for 1994 were mailed out by FASEB this Fall. To ensure that your membership remains current and that you are included in our next Membership Directory, please don't forget to return your notice with payment before the end of the year. Lapsed memberships require further action which only ends up costing the Society needlessly. Also please make a special effort to contribute to the Endowment Fund. Increased dues along with decreased interest rates will result in a significant decrease in numbers of endowments possible (see Endowment Committee Report on page 21). If you haven't yet received your 1994 notice or have misplaced it, please contact FASEB as soon as possible (address on page 37). The Editor

Committees who labored diligently to make the meeting a success.

W.M. Brooks and J.D. Harper

VITH. INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY AND MICROBIAL CONTROL IN CONJUNCTION WITH THE XXVIITH. S.I.P. ANNUAL MEETING AND THE SECOND INTERNATIONAL CONFERENCE ON *BACILLUS THURINGIENSIS* MONTPELLIER, FRANCE 28 AUGUST - 2 SEPTEMBER 1994

The Sixth International Colloquium on Invertebrate Pathology and Microbial Control will be held in the Montpellier Congress Centre "Le Corum" from 28 August to 2 September, 1994. Le Corum is situated in the heart of the city of Montpellier, a few minutes walk from the main hotels, restaurants and shopping areas.

The following facilities have been reserved:

A large auditorium (735 seats) for the opening session and the plenary sessions (symposia), a smaller auditorium (310 seats) and 5 rooms (from 80 to 140 seats), an exhibition hall for poster presentations (up to 200 panels) where coffee breaks will also take place, and a room for organizing members. Facilities will be provided at extra cost for commercial exhibits.

These arrangements will provide good flexibility for organizing the scientific program for both the VIth ICIP and the 2nd International B.t. Conference into plenary sessions, symposia, a poster session and up to six concurrent sessions (workshops, contributed paper sessions).



Montpellier, France. LeCorum Site of 1994 Colloquium (Arrow)

Scientific Program Committee Members:

C. VAGO (Academy of Sciences) Honorary Program Chairman

J. FARGUES (INRA, Montpellier) A. KLIER (Institut Pasteur, PARIS) N. BOEMARE (INRA, Montpellier) R. FRUTOS (C.I.R.A.D., Montpellier) P. FERRON (INRA, Montpellier) L. LACEY (USDA, Montpellier) M. LECADET (Institut Pasteur, Paris) M. BERGOIN (University of Montpellier II) B. PAPIEROK (Institut Pasteur, Paris)

Consultants:

J. VLAK (The Netherlands) R. GRANADOS (U.S.A.) B. FEDERICI (U.S.A.) C. PAYNE (England) J. HÜBER (Germany)

Except for Monday (opening session), the morning sessions will start with a one and half hour Plenary Session held in the Pasteur Auditorium with no concurrent sessions. On Tuesday and Thursday, the 2nd half morning, sessions will be devoted to 2-3 concurrent Symposia. These will include the Microsporidia Division and the Microbial Control Division Symposia. The themes presented during Plenary Sessions or Symposia will be developed or extended to related fields in the following workshops or contributed paper sessions. If necessary, evening workshop sessions will be organized on Monday and Tuesday.

The posters will be presented in the poster exhibition hall as soon as Monday and will remain on panels until Wednesday noon. This will allow delegates to look at them for two and half days and to discuss with their authors during the Poster Session.

The following topics for Plenary Sessions or Symposia are suggested:

Molecular Genetics in Invertebrate Pathogens

Endosymbionts

Insect Resistance to Pathogens and Resistance management

Bacillus thuringiensis-Bacillus sphaericus mode of action Mode of Entry of Pathogens

Defense Reactions

Epidemiology of Pathogens

Biological Control of Vectors

Progress in Cell Culture Bt Toxin Engineering Mass Production of Insect Cells Entomopathogenic Fungi in Tropical Regions

The program of the Bt Conference will be included within the framework of the ICIP program. A. KLIER will organize the program of the Bt Conference.

Local Organizing Committee Members:

C. BENAU (C.N.R.S., Montpellier) Social Program

M. BERGOIN (University of Montpellier II) Chairman

F. COUSSERANS (I.N.R.A. Montpellier) Treasurer, Social Program

J. COUPLAND (C.S.I.R.O., Montpellier)

G. DEVAUCHELLE (I.N.R.A.-C.N.R.S., Saint Christol) Contact with Conseil Général du Gard.

R. FRUTOS (C.I.R.A.D., Montpellier) Sponsorship by private industries, Social Program

A. KIRK (U.S.D.A., Montpellier) Contact with District, Region, City

L. KNUTSON (U.S.D.A., Montpellier) Editing of program and proceedings

L. LACEY (U.S.D.A., Montpellier) Publicity

G. MERCADIER (U.S.D.A., Montpellier) Transportation, Social Program

H. NICOLAS (District Montpellier) Contact with Montpellier Technopole

M. PUYGRENIER (Agropolis, Montpellier) Contact with Conseil Régional Languedoc-Roussillon

C. SILVY (I.N.R.A., Montpellier) Editing of program and proceedings

L. THALER (University of Montpellier II) Contact with C.I.L.B.A. and University of Montpellier II

Social Events:

The social events will include:

-The "get-together" ("Mixer") party will be on Sunday evening (7 to 9 pm) probably at Le Corum. Other possible locations are being considered.

-The mid-Colloquium tour will be on Wednesday afternoon. We shall visit the medieval city of Aigues Mortes from which King Louis IX (Saint Louis) embarked for the Holy Land Crusades, the Roman colliseum at Nimes and we will reach the Roman Aqueduct Pont du Gard where the 5 km race will take place (between 6-7 pm). The finish line will be on Pont du Gard itself. Facilities will be provided for the runners (showers, refreshments). The excursion will end with a "B.B.Q." on

the shore of the Gard river or a dinner in a nearby restaurant. Hopefully the excursion will be free of charge.

-The banquet will be on Thursday night. Several possibilities are being investigated: the medieval abbey of Valmagne, Domaine de Grammont, Les Coteaux du Languedoc or Le Corum itself. The final decision will depend essentially upon financial support from local authorities. This, in turn will determine the cost to delegates.

One or half day excursions organized by the Montpellier tourist bureau will be proposed at extra cost for accompanying members. Similarly, pre and post Colloquium Tours will be proposed.

M. Bergoin

SPECIAL TRAVEL GRANTS TO THE VITH INTERNATIONAL CONGRESS OF THE SOCIETY FOR INVERTEBRATE PATHOLOGY--INTERNATIONAL CONFERENCE ON BACILLUS THURINGIENSIS

There will be four partial travel grants (up to \$500 each *) for students to make a presentation (oral or poster) at the sessions on *Bacillus thuringiensis* (and related topics on entomopathogenic bacteria) at the International SIP Conference in Montpellier, France, August, 1994.

Completed applications must be submitted no later than March 1, 1994 to:

Dr. Arthur Aronson

Department of Biological Sciences

Purdue University

West Lafayette, Indiana, USA 47907-1392 Include the following:

1. A brief resumé of academic training.

- 2. An abstract of the SIP presentation and any other supporting documents (reprints, preprints, etc.).
- 3. Documentation that the rest of the funds needed to attend the meeting will be available.
- 4. Letters of support from the major professor and at least one other person familiar with the student's research.

A subcommittee comprised of *B. thuringiensis* researchers and members of the SIP will make the selections. Announcement of those selected will be made on or about April 15, 1994.

*Funds provided by industrial supporters of the First International Conference on *Bacillus thuringiensis* San Francisco, July, 1992

PRESIDENT'S REPORT, 1993

The year's work can be summarized under the following headings:

FASEB

FASEB have continued to provide financial management and membership services for a cost of \$ 5,400 based on an estimated 700 members. At present, FASEB record 959 members as having "active status" including 692 paid-up members in 1993 (614 full members, 77 student members and 1 sustaining member) and 159 and 73 members, respectively, from 1992 and 1991 who have not paid their membership fee for 1993.

This membership level, together with the costs of running the Society that will be reported by the Treasurer suggests that we need to review a number of options to increase membership and financial support of the Society.

(a) Make the Society more attractive; Mark Goettel's editorial in the May 1993 issue of the SIP Newsletter ("Time for SIP to Reach out and Touch Someone") is relevant here.

- (b) Undertake a recruitment drive.
- (c) Push harder for sustaining members.
- (d) Seek to increase industry support, e.g., for the Founder's Lecture and Student Paper Awards.

Meetings

During the year I have visited France on two occasions to monitor progress on the planning for the 1994 Colloquium. On both occasions, I reported back to Council members in the form of a written report. Arrangements for meetings from 1995 onwards appear to be bedding down well, with firm proposals as follows:

1995, Ithaca;	1997, Banff;
1996, Spain;	1998, Possibly Japan

Arrangements for the Asheville meeting appear well on course and I would like to thank the local organisers, particularly Wayne Brooks and Jim Harper for the efficiency of their planning and the prompt production of a Program and Abstracts that has been prepared in a format which should reduce the costs of production and mailing.

Newsletter

I believe that the Newsletter has maintained a high standard over the last year and I would like to thank Betty Davidson and Mark Goettel for the commitment and professionalism to this important task.

Financial and Secretarial Matters

I have been in regular contact with the Treasurer and Secretary. Efforts have continued to obtain the surplus funds generated by the 1986 Veldhoven meeting. In a meeting in May, Just Vlak confirmed that he would forward the funds but I do not yet have confirmation that these have been received by the Treasurer. (Editor's note: see Treasurer's Report on page 18.)

I have established a Nominating Committee to provide the slate of candidates for election to posts within the Society for ballot in 1994. The Committee will be chaired by Dudley Pinnock and will include, as members, Betty Davidson, Bob Anderson and Jurg Huber.

Other Matters

During the year I have dealt with correspondence on future Founders Lectures, scientific symposia at the 1994 Colloquium, Databases and Student Awards (to be discussed at the Council meeting). On behalf of the Society, I wrote to Eileen Dulmage and family, following the death of Howard Dulmage.

C.C. Payne July 10, 1993

MINUTES OF 1993 BUSINESS MEETINGS GREAT SMOKIES RESORT AND CONFERENCE CENTER ASHEVILLE, NORTH CAROLINA

Minutes of the 26th Annual SIP Business Meeting

The 26th Annual Business Meeting was called to order by President Chris Payne at 10:35 AM on August 5, 1993. Dr. Payne thanked both the Local Arrangements and Program Committees for their superb effort to organize a highly successful and scientifically stimulating meeting. On behalf of the Society, President Payne also thanked the companies that contributed to the meeting. Thanks was also offered to Drs. E. Davidson (Editor) and M. Goettel (Assistant Editor) for their excellent efforts and timely publication of the SIP Newsletters. President Payne indicated that FASEB was providing satisfactory service to the Society with regard to SIP finances. A Nominating Committee, chaired by Dr. D. Pinnock was appointed to initiate the nomination process for the election of Council members to be held in 1994. Finally, Dr. Payne offered condolences to Ms. Eileen Dulmage on the death of her husband, Dr. Howard Dulmage, a distinguished member of the Society. Dr. Dulmage had been proposed for Honorary Membership in the Society prior to his death. Several members expressed strong opinions that Dr. Dulmage's name should remain on the ballot for Honorary Membership. The bylaws are somewhat vague in this regard.

On behalf of the Local Arrangements Committee, Dr. W. Brooks reported that there were 321 registered participants. There were 169 abstracts received for presentation in 9 Symposia (ca. 45 papers given), 11 Contributed Paper (ca. 83 papers given) and 2 Poster (46 posters given) sessions. Recognition was also given to the members of the Organizing Committee who worked very hard to set the meeting up.

Dr. B. Federici, on behalf of the Meetings Board, indicated the venue for future meetings. The 1994 Meeting (XXVIIth Annual Meeting and VIth International Colloquium of Invertebrate Pathology) will be held in Montpellier, France from August 28 to September 2, 1994. The 1995 Meeting will be held at Cornell University, Ithaca, New York. The locations of other meetings are tentatively planned as follows: 1996 Segovia, Spain; 1997 Banff, Alberta, Canada; and 1998 not confirmed, but one offer has been received from Sapporo, Japan. Dr. Federici also indicated that consideration for offers for future meeting sites must be submitted to the Meetings Board in writing.

Dr. M. Bergoin described in detail the facilities available, at the modern "Le Corum", for the 1994 meeting and ICIP and a video presentation was shown. There will be an exciting social program, including an excursion to a medieval city and Thursday evening banquet, and a full scientific program with morning plenary sessions. Dr. Bergoin indicated that the registration fee for regular members should be about \$200. Nonmembers will be assessed \$50 more than regular members, so please encourage your colleagues to join the Society.

The Treasurer, Dr. H. Kaya, gave a report on the finances of the Society. Dr. Kaya indicated that FASEB is now performing all accounting functions for the Society. By fiscal year's end on April 30, 1993 the Society had

operating funds of approximately \$39,000 and funds of ca. \$8,000 allocated to the Divisions of Microbial Control and Microsporidia and the Endowment fund. There was a proposal to add the cost of the Proceedings for the 1994 meeting to the Membership form following the Montpellier meeting. Dr. Kaya also raised the issue that while the financial state of the Society is still healthy, we are spending approximately \$50 on each member per year. Membership dues, however, are presently only \$30 and do not cover costs. There was discussion regarding possible support or sponsorship by Companies for specific activities, e.g. Founder's Lecture, Student Paper Awards, etc. It was decided that membership dues will not be raised for the current year, due to the recent doubling of dues. The full financial details are published in the Treasurer's Report.

Dr. W. Gelernter of the Membership Committee reported that the Society has 727 paid members prior to the Asheville Meeting with approximately 15 more individuals joining in Asheville. Among the membership, approximately 50% are from the United States with the remaining 50% coming from many different countries. The Committee is working on the preparation of membership forms in several different languages and updating the brochure describing the SIP. A membership list will be issued bi-annually and sent together with one issue of the Newsletter. The complete report follows.

It was reported that Council approved the nomination of three individuals for inclusion in the 1994 ballot for Honorary Membership in the Society. These individuals are: Dr. H. De Barjac, Dr. H.D. Burges and Dr. M. Martignoni.

The Division chair, Dr. M. Klein, of the Division on Microbial Control (see Committee report) reported that 140 were in attendance at the Annual Business Meeting. New officers were elected with Dr. A. Hajek as Chair-elect and Dr. J. Vandenberg as Secretary/Treasurer. The slide atlas was considered a great success. A proposal was made with regard to the Division managing its own funds apart from Society funds in general. No direct action, however, was taken on this point. After considerable discussion it was decided that an Ad Hoc committee would be appointed to evaluate proposals to sponsor a position paper or symposium on the safety of microbial agents, especially fungal agents initially.

The Division on Microsporidia, chaired by Dr. A. Cali, reported that 60 people attended the meeting. Division dues were raised from \$1 to \$2/year. The full report follows. It was recommended that Members of this Division, and also Div. on Microbial Control, be identified by asterisk or other symbol in the Membership Directory. W. Gelernter agreed to obtain a list of Division members from FASEB. A recommendation was made to waive registration fees at Annual Meetings for invited symposium speakers. Dr. Granados indicated, however, that this would be at the discretion of the Local Arrangements Committee, but that, traditionally, fees have only been waived for non-members.

Dr. E. Davidson reported that three (3) issues of the Newsletter with 54 pages of text were issued in 1993. Also, a 35 page Membership Directory was issued. The approximate cost of the Newsletter to the Society was \$12,700 for the three issues, or about \$19 per member. Dr. Davison also indicated that Council approved her recommendation to change editorship with Dr. M. Goettel becoming Editor and Dr. Davidson acting in the capacity of Assistant Editor. Dr. Becknell recommended that we ask Academic Press if the contents of the Journal of Invertebrate Pathology can be published in the Newsletter.

The Founder's lecture was well received. As in the past, the chair will rotate with Dr. R. Daoust assuming the position for 1994 and Dr. A. Sweeney leaving the chair, but remaining on the Committee. Other committee members are Dr. C. Ignoffo and Dr. C. McCoy. The committee called upon the membership to submit confidential recommendations for future Honorees and Lecturers.

Dr. G. Soares, chair of the Endowment Committee indicated that 10 members from 9 different countries were sponsored for membership by the Committee in 1993. Dr. Soares requested that names of qualified individuals, especially members or scientists desiring to become members in currency-controlled countries, be passed to him or other members of the committee.

In other business, a Student Awards Committee chaired by Dr. W. Gardner was formed by President Payne. There was considerable discussion about our relationship with the Journal of Invertebrate Pathology (JIP) and the Editor. Dr. Reinische was invited to attend the SIP Council meeting. There was no specific resolution to issues regarding our relationship with JIP.

Considerable time was given to discussion of Honorary members and a motion was made by C. Ignoffo to increase the number of eligible candidates from 3 per two year period up to 10% of the membership. The motion

was seconded by Dr. M. McManus. The motion was later amended so that membership would be less restrictive, but may not necessarily be up to 10% of the membership. This latter motion will be sent to Council for consideration and approval. A motion was also passed for Council to consider whether deceased members should be given Honorary membership in recognition of their contribution to the Society.

Finally, Dr. Davidson made a motion to accept the minutes of the last (1992) Annual meeting and R. Daoust seconded the motion. There was unanimous approval to accept the motion.

The meeting was adjourned by President Payne at about noon.

Richard A. Daoust Secretary, SIP

Minutes of the Division on Microsporidia Business Meeting



The meeting was called to order by Chair Cali on August 3, 1993.

The minutes of the 1993 meeting were read by Secretary Bauer. Chair Cali moved that the minutes be accepted, the motion was seconded by Jimmy Becnel, and the minutes were approved by unanimous decision.

Old Business: Chair Cali solicited any old business from business meeting participants. Ted Andreadis requested the balance of the Division account since a surplus of funds remained following payment to Lipa for his translation work. Budget information was not immediately available, although Chair Cali suggested Harry Kaya would have that information. Jimmy Becnel suggested that Bauer could request an update on the account balance for the Division. Chair Cali also suggested that Bauer request a Division membership list from Mark Goettel, and that the next SIP membership list should indicate Division membership for each member.

New Business: Chair Cali was requested by the SIP Bylaws Division Committee, which is currently updating/revising the Bylaws, to determine if our division operates by the Bylaws and/or if the Bylaws need changing. Chair Cali

read from SIP Division Bylaws Sections 5 and 6. There was no apparent consensus on needed changes in the Chair Cali, however, pointed out that our Bylaws. Division often lacks representation by an ex-officio on the Program Committee, as recommended in Sec. 5. Much discussion ensued with Ted Andreadis and Jimmy Becnel suggesting this would give us more input on symposia topics. In addition, Joe Maddox and others expressed some concern that the microsporidia talks are always relegated to the last day of the SIP meetings. Wayne Brooks said that planning was very complex with many competing subject areas, and that accommodating international travellers was a major concern. Chair Cali suggested that we make a concerted effort to request symposium topics in advance so they are given equal consideration. Wayne Brooks stated that the Division has typically preferred the informal atmosphere of a workshop and that symposia on microsporidia are not an annual event.

Discussion then focused on possible symposia topics for the 1994 Colloquium in Montpellier. Chair Cali said that Tim Kurtti had previously suggested a symposium or workshop on the *in vitro* culture of microsporidia. There was discussion on the pros and cons of workshop vs. symposium formats, and the informal nature of the workshop was generally favored over the symposium format. Wayne Brooks suggested that the meeting planners in France had already made plans for symposia and the microsporidian section anyway. It was generally agreed that Tim Kurtti should be chair of the 1994 workshop on microsporidia in tissue culture.

Tim Kurtti reminded members of the evening workshop on spore polymorphism.

Al Undeen has just completed the first draft "Methods in Microsporidiology", which was requested by participants at the S-240 Southern Biocontrol Workshop. He is soliciting any additional or alternative methods, equipment, recipes, software...used by researchers in this area. He gave out copies for review and must receive submissions (with references if possible) for inclusion in the booklet before the 1994 S-240 Meeting. Publication funds were discussed with no general agreement. Chair Cali suggested that the booklet could be distributed by a note in the SIP Newsletter and in J. Euk. Protozool. Many members thought this would be a very useful reference for researchers and students, particularly in human medicine.

Chair Cali requested information on the status of the data base being developed by David Onstad. Sara Lanka

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described the data base fields and believed more data would be entered this fall. She did not have information on availability.

Chair Cali encouraged Division members to submit notes on interesting microsporidian news for publication in the Newsletter. These notes should be sent to Jimmy Becnel, our Newsletter liaison.

The meeting was adjourned by Chair Cali at 1:54 PM.

Respectfully submitted by Leah S. Bauer, Secretary

Minutes of the Division on Microbial Control Business Meeting

The meeting was called to order on August 2, 1993 at 1930 with approximately 120 people present. The 1993 annual report was summarized, including mention of the Division-sponsored symposium on August 4 and the workshop to follow the business meeting.

There are presently 315 members in the Division, an increase of 34 from last year.

Directory of Industries: The Directory of Industries is now sold out. In 1994 or 1995, the Division plans to update this Directory. Please send entries or changes to Mark Goettel. (Editor's note: see announcement on page 28 for further information on the Directory)

Slide Atlas: A summary of the status of sales of the slide atlas was made. A total of 250 sets of the slide atlas were created and these first went on sale in August, 1992 in Heidelberg. Over the past year, 140 sets have been sold. At present, cost to the Division per slide atlas is:

Cost of slide reproduction and xeroxing	\$ 24.70
Estimate of postage	<u>5.92</u>
IUIAL	\$30.62

Each slide atlas is sold for \$50, or \$55 for overseas mailings. The Society gave the Division credit to make the slide atlas, at a cost of \$6175.61. By now, income from slide atlas sales are about equivalent to the amount spent to make the atlases and the remaining sales will largely be profit.

For the past year the slide atlas has only been advertised in the SIP Newsletter. Since sales are slowing, it will now be advertised more widely. There has been a large demand for another slide atlas on basic insect pathology, but at present there are no plans to create another slide atlas. (Editor's note: see announcement on page 30 for ordering information).

Potential Subcommittees: Last year, Wendy Gelernter was named as Chair of a committee to explore the possibilities of the Division sponsoring publication of a document on standardization and bioassay of microbial control agents. This was seen as necessary to compare different Bt products from different companies. No action has been taken on this and Division members were now not as concerned with this problem. A motion to dissolve the subcommittee was passed.

Mark Goettel suggested that the Division support the writing of a document discussing the pros and cons of host range and safety of microbial control agents. Extensive discussion ensued regarding a range of subjects, crystallizing on whether or not the Division should vote on creating a subcommittee to investigate whether such a document should be developed. A vote was taken and a subcommittee was created with Mark Goettel as chair. The subcommittee is to publish their decision in the Newsletter. (Editor's note: see page 25 for Subcommittee's report.)

Election of New Officers: Michael McGuire stepped down as Chair of the Division after a busy two years including creating and selling both the Industrial Directory and the Slide Atlas and Michael Klein assumed the chairmanship. Ann Hajek is replaced as Secretary/Treasurer by John Vandenberg and she was elected as Chair-Elect. Jane Drummond and Ramon Georgis were renominated and reelected as Members-at-Large and Jeff Lord is retained in this capacity.

Finances: Budget of Ithac August 1, 1992 through A	ca Account:	
Revenue: Slide Sales Directory Sales	\$ 6069 40	
Interest TOTAL	<u>_36</u> <u>\$ 6145</u>	
Expenses: Mailing and Supplies Miscellaneous Mailed to FASEB for S TOTAL	ociety Payment	\$ 21 22 <u>4000</u> <u>\$ 4043</u>

YEAR END SUMMARY <u>\$ 2102</u>

New Business: Following election of new officers, new business was taken up.

Two prominent SIP members, each of whom had interests in microbial control, passed away recently. With little discussion, the Division voted unanimously to send letters of condolence to the families of Howard Dulmage and Bill Yendol. Personal notes from any Division members would also, no doubt, be appreciated.

Nominations were solicited for the Society's Founder's award: for both lecturer and nominee. Suggestions should go to Clay McCoy.

Suggestions for workshop and symposium topics for next year's International Colloquium were solicited. Two receiving mention were microbial control of soil insects (Kaya) and another workshop similar to this year's (see separate report on page 31) featuring the microbial control products of European-based companies (Gelernter).

The interrelationship of the Division and Society treasuries was discussed. Problems arise when, as a Division, we want easy and local access to funds to conduct Division business. This has resulted in confusion between the Division and FASEB related to accounting procedures. The Division will solicit input from the SIP Council at their next meeting to consider options for facilitating both accurate accounting procedures and needed flexibility for handling funds at the local level.

Mark Goettel, as SIP Newsletter Editor, issued a standing plea for Newsletter items.

John Vandenberg, Secretary/Treasurer, SIP Microbial Control Division

STUDENTS AWARDED FOR BEST PRESENTATION IN ASHEVILLE

The Student Awards Committee, consisting of Ron Harrison, Ted Andreadis, and Wayne Gardner (chair), judged nine student presentations and eight student posters at the XXVIth Annual Meeting in Asheville. Student presenters included L.C. Apuya, Michael D. Baker, M. Blowers, Margarita Corres, Ted Cottrell, K. Girard, P.W. Gothro, Michael Henn, Douglas Inglis, P.A. Koni, S.Lanka, Yang-Jiang Lu, Bettina Moser, and Eun Ju Park.



Top: D. Inglis and E. J. Park. Bottom: L. Apuya and B. Moser.

G. Douglas Inglis received 1st place recognition in the Student Presentations with his paper, "Persistence of *Beauveria bassiana* Conidia Applied Onto Crested Wheatgrass and Alfalfa in Three Formulations". His paper was co-authored by Mark S. Goettel and Dan L. Johnson. Runner-up in this categrory was Eun Ju Park with her paper, "The Effect of Baculovirus Infection and EGT Gene Expression on Hormonal Regulation in Gypsy Moth Larvae", which was co-authored by John P. Burand.

In the Student Posters, L.C. Apuya of North Carolina State University was awarded 1st place with her poster, "Gregarines of the Darkling Beetle, *Alphitobius diaperinus*, in Poultry Houses from North Carolina". The poster was co-authored by Wayne Brooks. Bettina A. Moser received runner-up honors with her poster, "Identification and

Classification of Two Microsporidia Found in Argentine Fire Ants, *Solenopsis* spp., Using Molecular Methods and Fatty Acid Analysis". Her poster was co-authored by Jimmy Becnel, Al Undeen, Jim Maruniak, and Richard Patterson.

Wayne Gardner, Chair

5-K RUN RESULTS - ASHEVILLE



First place runners (left to right): Ron Harrison Gerald Carner and Leellen Solter.

MEN (under 40)		MEN (40 & over)			
Ron Harrison	17:47	Gerald Carner	19:00		
Vance Kramer	19:18	Christopher Payne	24:33		
Bart Lambert	19:31	Dave Moore	24:48		
James Becnel	24:34	Mike Adang	25:02		
Roger Frutos	25:29	Albert Undeen	25:33		
Michael Baker	25:42	Theodore Andreadis	25:40		
Pandelakis Koni	25:42	Christopher Lucarotti	25:41		
Koen Hendrickx	28:22	Paul Semtner	26:26		

MEN WALKERS

Terry Couch 41:07

WOMEN RUNNERS WOMEN WALKERS

Leellen Solter	25:08	Peggy Andreadis	32:14
Mary Barbercheck	26:22	Carol Apperson	37:09
Bettina Moser	27:39	Lucy Anderson	38:00
Suzanne Winter	27:39	Eileen Bone	41:06
Eliane Quintela	29:57	Ann Cali	47:35
		Suzanne Thiem	50:45

EDITORIAL

The Role of Divisions in SIP Mark Goettel Newsletter Editor

In both the President's and Membership Committee reports (published in this Newsletter), it is expressed that we must make the Society more attractive. Our Society consists of members from a very wide variety of disciplines and sub-disciplines. Most members also belong to several other societies be it Entomology, Nematology, Virology, Ecology or whatever. As the importance of invertebrate pathology increases, many of these other Societies or special interest groups are responding by organizing their own symposia and workshops, sometimes in direct conflict even to our own annual meetings! Furthermore, as our membership shifts in response to changing disciplines, certain members are feeling more and more left out. One of our greatest challenges is to ensure that we have a Society that attracts members from all the disciplines and subdisciplines of invertebrate pathology and that all of these members have a role to play and feel part of the Society. As the importance of invertebrate pathology increases, this challenge will become more difficult.

I think that our founding members realized this challenge and enshrined in the Constitution and Bylaws a means by which we can at least in part address this problem. In part, Article VI, Section 3 of our Constitution states "Divisions shall be professional groups organised by Members with common scientific interest in one of the disciplines of invertebrate pathology." Unfortunately only two Divisions have been formed to date, the Division on Microsporidia and the Division on Microbial Control. Although very active and successful in promoting their areas of scientific interest, these two Divisions are unable to do much for members outside of these two disciplines. Therefore, I feel that what our Society needs is more Divisions. This would ensure that members in other disciplines would be able to play a more important and significant role within our Society. This in turn should

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attract new members who may presently be more attracted to other societies.

In part, Article VI, Section 2 of our Bylaws states "Divisions may be established by the Council in response to a request signed by at least 20 members of the SOCIETY in good standing and with common scientific interests." How about Divisions on Nematodes, Viruses, Bacteria, Non-Insect Pathology or even Industry? Is this the answer? Would this make our Society more attractive and useful? Did our founders envision a Society whereby the Council acted as an umbrella of numerous active and dynamic Divisions? Letters to the Editor are welcomed.

CANDIDATES FOR SIP OFFICES

PRESIDENT



Robert R. Granados

Education: B.S., 1960, University of California, Davis; M.S., 1962, University of Wisconsin, Madison; Ph.D., 1964, University of Wisconsin, Madison.

Experience: Assistant Entomologist, Boyce Thompson Institute, 1964; Associate Virologist, Boyce Thompson Institute, 1969; Virologist, Boyce Thompson Institute, 1974; Virologist and Director Biological Control Program, Boyce Thompson Institute, 1977; Adjunct Professor of Entomology, Cornell University Department of Entomology, 1988-present; Virologist and Director for Plant Protection Program, Boyce Thompson Institute, 1988-present; Charles E. Palm Distinguished Scientist Chair, 1992; Fellow of the American Association for the Advancement of Science, 1993; Visiting Professor, Univesity of Wisconsin, Madison, 1976; Visiting Professor, University of California, Riverside, 1987.

Membership: Charter Member of the Society for Invertebrate Pathology, 1968; Member of Program Committee, Society for Invertebrate Pathology, 1983present; Member of Founders Lecture Committee, Society for Invertebrate Pathology, 1983-1991; Member of Endowment Committee, Society for Invertebrate 1986-present; Member of Publications Pathology, Committee, Society for Invertebrate Pathology, 1986-89; Secretary, Division of Microbial Control, Society for Invertebrate Pathology, 1985-87; Treasurer of the Society for Invertebrate Pathology, 1986-88; Member of the Entomological Society of America; Member of the American Society for Microbiology; Charter Member of the Society for Virology; Member of the American Association for the Advancement of Science; Member of the Scientific Advisory Board - Ecogen, Inc.; Member of EPA Advisory Committee for the Safety and Monitoring Section of the Baculovirus Research Development and Registration Program, 1976-1977; Member of Review Panel - EPA Innovation Research Program, December 1978; Member of Competitive Research Grants Office, Biological Stress on Plants Review Panel, May, 1982; Member of Review Panel for the USDA-ARS Gypsy Moth Program Review, Sept. 1982; Member of Southern Regional Project SY 135 (Development of Microbial Pesticides), 1979-present; Membership in the Invertebrate Virus Subcommittee - International Committee on Taxonomy of Viruses, 1977-1984; Membership in the Poxvirus Study Group - International Committee on Taxonomy of Viruses, 1987-1990; Chairman of subsection Cc on Insects in Relation to Plant Diseases, Entomological Society of America, 1970; Member of Eastern Branch, Entomological Society of American Screening Committee for Recognition Awards, 1982-83; Member of Eastern Branch, Entomological Society of America Constitution and By-Laws Committee, 1981-84; Chairman of subsection Ce on Insect Pathology and Microbial Control, Entomological Society of America, 1983; Secretary, Section C, Entomological Society of America, 1988; Chairmanelect, Section C, Entomological Society of America, 1989; Chairman, Section C, Entomological Society of America, 1990; Member of FAO scientific panel on "Desert Locust Biology and Behavior", Rome, Italy, April, 1989; Member of Program Committee, Entomological Society of America, 1980-90; Member of Program Committee, 1992 Entomology Congress, Beijing, China, 1990-present; Editorial Board, Phytopathology, 1974-75; Editorial Board, J. of Invertebrate Pathology, 1978-80; Editorial Board, Biological Control-Theory and Application in Pest Management, 1990-93.

Interests: Microbial pathogens of invertebrates, particularly insect viruses. The molecular basis of viral

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pathogenesis. Insect cell culture applications in invertebrate pathology.

VICE PRESIDENT



Brian A. Federici

Education:B.S., 1966, Rutgers University; M.S., 1967, University of Florida, Gainesville; Ph.D., 1970, University of Florida, Gainesville.

Experience: Postdoctoral fellow, Boyce Thompson Institute for Plant Research, Yonkers, N.Y., 1972-74. Assistant Professor of Entomology, University of California, Riverside, 1974-78; Associate Professor of Entomology, University of California, Riverside, 1978-83; Professor of Entomology, University of California, Riverside, 1983-93; Acting Director, Interdepartmental Graduate Program in Genetics, University of California, Riverside, 1992-93; Member, Society for Invertebrate Pathology, 1970-93; Trustee, Society for Invertebrate Pathology, 1984-1988; Chair, Meetings Board, Society for Invertebrate Pathology, 1988-1993; Member, Divisions of Microbial Control and Microsporidia, Society for Invertebrate Pathology, 1984-93; Member, Entomological Society of America, 1968-1993; Chair, Subsection Ce, Insect Pathology and Microbial Control, Entomological Society of America, 1987; Member, American Association for the Advancement of Science, 1968-1993; Member, American Society for Microbiology, 1974-1993; Member, American Mosquito Control Association, 1970-1988; Member, Society for Vector Ecology, 1988-1993; Member, World Health Organization, Steering Committee on the Biological Control of Vectors, 1981-1986; Member, World Health Organization, Expert Committee on Vector Biology and Control, 1982-1993; Member, World Health Organization, Scientific Working Group on the Biological Control of Vectors, 1981-1993; Member, Scientific Advisory Board, Safer, Inc., 1986-1990; Member, Scientific Advisory Board, Entotech-Novo Nordisk, Inc., 1992; USDA Competitive

Grants Review Panel, Biological Stress on Plants, 1989; NIH Ad hoc Study Section, Tropical Medicine and Parasitology, 1990; Editorial Board, Journal of Invertebrate Pathology, 1982-1988; Associate Editor, Journal of Invertebrate Pathology, 1993; Member, University of California Systemwide Biotechnology Research and Education Committee, 1988-1993; Chair, University of California, Riverside, Academic Senate Committee on Educational Policy, 1986-88; Chair, University of California Universitywide Committee on Educational Policy, 1989-1990; Member, University of California Academic Council, 1989-1990.

Interests:General insect pathology; basic and applied biology of insect-pathogenic bacteria, viruses, and fungi. Recent research has focused on the basic biology of *Bacillus thuringiensis* and baculoviruses, and the development of these pathogens as microbial insecticides for control of insect pests and disease vectors.

VICE PRESIDENT



Lawrence A. Lacey

Education:B.A. (1973) Biology, California State University, Stanislaus; M.S. (1975) and Ph.D. (1979) Medical Entomology and Insect Pathology, University of California, Riverside.

Experience:Research Entomologist (Insect Pathology), USDA, ARS, European Biological Control Laboratory, Montpellier, France; Japanese Beetle Biological Control Program, USDA and Azorean Regional Department of Agriculture, Terceira, Azores, Portugal, (1989-1991); Vector Biologist, Vector Biology and Control Project (USAID), Medical Services Corporation International, Arlington, VA, (1986-1989); Research Entomologist, Insects Affecting Man and Animals Research Laboratory, USDA, ARS, Gainesville, FL, (1981-1986); Consultant, World Health Organization, Onchocerciasis Control Program, Volta Basin, West Africa, (July-Nov. 1980);

Assistant Professor, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil, (1978-1980); Research Assistant, Department of Entomology, University of California, Riverside, (1973-1977).

Society for Invertebrate Pathology: Member since 1981; Secretary, 1990-1992; Trustee, 1992-present; Committees:Membership, Chair 1984-1986 and member, 1984-present; Endowment, Chair (1991-1992) and member (1989-1993); Safety, chair (1984-1987); Microbial Control Division, Secretary (1984-1986) and Member at Large (1989-1991); member of Local Arrangements and Program Committees for 1994 International Colloquium for Invertebrate Pathology.

Membership and activities in other professional societies: Entomological Society of America, Microbial Control Division, Chair-elect (1984), Chair (1985) and representative of Section C to editorial board of Journal of Medical Entomology (1989-present). Member: American Mosquito Control Association; American Society of Tropical Medicine and Hygiene; Pacific Coast Entomological Society; Society of Vector Ecologists; Sigma Xi; International Organization for Biological Control.

Interests: Foreign exploration for effective parasites and pathogens of introduced insect pests and their development as microbial control agents. Factors that limit or enhance activity and persistence of insect pathogens and parasites; Microbial control of *Popillia japonica*.

SECRETARY



James J. Becnel

Education: B.S. (Biology) 1976, Tulane University; M.S. (Zoology)1981, McNeese State University; Ph.D. (Entomology) 1989, University of Florida.

Experience: Agricultural Research Technician, USDA, ARS, Gulf Coast Mosquito Research Laboratory, Lake Charles, LA,1980-1981;Biologist, USDA, ARS, Gulf Coast

Mosquito Research Laboratory, Lake Charles, LA 1981-1985; Biologist, USDA, ARS, Medical and Veterinary Entomology Research Laboratory, Gainesville, FL, 1985-1991; Research Entomologist, USDA, ARS, Medical and Veterinary Entomology Research Laboratory, Gainesville, FL, 1991-present. Courtesy Assistant Professor, University of Florida, 1992-present.

Membership: Society for Invertebrate Pathology, 1981 to present; Chairman, Division on Microsporidia, 1988-90; Member, Nominating Committee, 1991; Member, Membership Committee, 1992 to present; Society of Protozoology, 1981 to present; Electron Microscopy Society of America, 1987 to present; Entomological Society of America, 1987 to present; American Mosquito Control Association, 1981 to present; Member, Scientific and Regulatory Committee, 1991-present; Florida Mosquito Control Association, 1991-present; Member, Biological Control Committee, 1991-present.

Interests: Microbial pathogens of invertebrates, particularly microsporidian and fungal pathogens of mosquitoes as biological control agents. Life cycle studies and taxonomy of the Microsporidia.

SECRETARY



Wendy D. Gelernter

Education: B.S.(Agricultural Science) 1976, Cornell University, Ithaca, NY; Ph.D. (Insect Pathology) 1984, University of California, Riverside, CA.

Experience: Mycogen Corporation, San Diego, CA, 1984present. Positions held: Research Scientist, Product Manager and Director, Commercial Development (current).

Membership/Service: Society for Invertebrate Pathology: Member (since 1982); Member at large, Microbial Control Division; Chair, Membership Committee; Entomological Society of America: Member (since 1982); Chair-elect, Insect Pathology Division; Journal of Economic

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Entomology: Board of Reviewing Editors; National Research Council Board on Agriculture: Biological Control Committee; Member, S-240: Working Group on Microbial Control, *Bacillus thuringiensis* Resistance Management Committee, and California EPA Task Force on Safer Pesticide Policy, 1992.

Interests: Microbial control of invertebrate pests, research and development of microbial based pesticides. Bt resistance management, application of biotechnology toward improvement of microbial pesticides.

TREASURER



Harry K. Kaya

Education: B.S. 1962; M.S. 1966, University of Hawaii; PhD. 1970, University of California, Berkeley.

Experience: NSF Undergraduate Fellow, University of Hawaii, 1960-1962; Research Assistant, University of Hawaii, 1964-1966; NIH Predoctoral Fellow, University of California, Berkeley, 1966-1970; Assistant Entomologist and Associate Entomologist, Connecticut Agricultural Experiment Station, New Haven, 1971-1976; Assistant Professor, Associate Professor and Professor of Entomology and Nematology, University of California, Davis, 1976-present.

Memberships and Professional Activities: SIP member since 1970; chairperson, Local Arrangements Committee for Davis Meeting, 1984; member, Journal Committee, 1982; chairperson, New Initiative Committee 1984-1986; adhoc member, Local Arrangements Committee for San Diego meeting, 1988; Editorial Board, Journal of Invertebrate Pathology. 1985-1987; member, Microbial Control Division, 1984-present; Treasurer, 1992-present. Entomological Society of America, National Organization: member, Membership Committee 1979; Secretary (1984), Chairperson-elect (1985), Chairperson (1986) of Subsection Ce (Insect pathology); Judge, Student Papers, Section C, 1990; member, Distinguished Teaching Award Committee, 1992-1993; Entomological Society of America,

Pacific Branch: member, Membership Committee 1983-1987; member, Auditing Committee, 1985, 1987. Society of Nematologists: member, Education Committee, 1980-1983; member and chairperson, Membership Committee, 1985-1986, 1989; member, Local Arrangements Committee, 1989; member, Entomophilic Nematode Committee, 1992-1993; Associate Editor, Journal of Nematology 1984-1985; Editorial Board, Journal of Nematology 1987-1989. Member, Southeastern Regional Project S-135, 1979-1990, member-at-large, 1984-1985, secretary 1985-1986. chairperson,, 1986-1988; member, Southeastern Regional Project S-240 1990-present. Co-organizer (with R. Gaugler), First International Conference on Entomopathogenic Nematology 1989; member, Hawaiian Entomological Society; member, IOBC; member, American Society of Parasitologists. Consultants to Environmental Protection Agency 1983, Sanford Research Institute 1985-1988, Plant Genetics 1986-1987; Biosys 1985present; Office of International Cooperation and Development 1991-1993 for Japanese beetle Azores project; and Edgar Dunn Associates 1993. Gypsy Moth Science Advisory Panel for the State of California 1981-1985. Editor (with R. Charudattan, W.J. Lewis, and C.E. Rogers) of Biological Control, Theory and Application in Pest Management 1990-present. Outstanding Alumnus, College of Tropical Agriculture and Human Resources, University of Hawaii 1990; Recipient of Japan Society for the Promotion of Science Fellowship 1993.

Interests: Insect-parasitic nematodes with emphasis in soil ecology and microbial control; general insect pathology.

TRUSTEE (2 to be elected)



David J. Ellar

Education: B.Sc., 1963 Leeds University; Ph.D., Syracuse University, 1967; M.A., University of Cambridge, 1968; Sc.D. University of Cambridge, 1988.

Experience: Postdoctoral Research Fellow, New York University School of Medicine, 1967-1968. University Lectureship, Department of Biochemistry, University of Cambridge, 1968-1993. 1993-present, University Reader in Microbial Biochemistry, University of Cambridge. Fellow and College lecturer in Biochemistry, Gonville and Caius College, Cambridge, 1968-present.

Memberships: Fellow Royal Entomological Society; Member, Society for Invertebrate Pathology since 1981; Member, Society for General Microbiology, American Society for Microbiology, Biochemical Society, Tissue Culture Association; Associate Editor, Journal of Invertebrate Pathology; Editorial Board Member, FEM Microbiol. Reviews.

Interests: Molecular basis of bacterial pathogenesis of insects, especially the structure and mode of action of *Bacillus thuringiensis* δ -endotoxins and the role of toxin receptors.

TRUSTEE



Mark S. Goettel

Education: B.Sc. 1975, Concordia University; M.Sc. 1977, University of Ottawa; Ph.D. 1987, University of Alberta Experience: Research Entomologist, Dept. of Health, Suva, Fiji, CIDA Fellowship for Canadians and WHO/United Nations Volunteer programs, 1978 - 81; NSERC Postdoctoral Fellow, Insect Pathology Resource Center, Boyce Thompson Institute, Ithaca, NY, 1987-88; Research Scientist, Insect Pathology, Agriculture Canada, Research Branch, Lethbridge, Alberta, 1988 - present.

Membership: Entomological Society of Canada, since 1975; Entomological Society of Ontario, 1976 - 78; Entomological Society of Alberta, since 1983 (Secretary, 1991 - present); American Mosquito Control Association, 1978 - 1988; Society for Invertebrate Pathology, since 1983 (New Initiatives Committee, 1985/86, Chair, Division on Microbial Control, 1989 - 91, past chair, 1991 - 93, SIP Newsletter Assistant Editor, 1991-93; SIP Newsletter Editor, 1993, Chair, Safety Publications Subcommittee, Division on Microbial Control, 1993, Chair, Local Arrangements Committee, Banff '97); International Organization for Biological Control since 1987; Mycological Society of America, since 1989; USDA/ARS Microbial Control Working Group, 1992 - present; Agriculture Canada Biological Control Working Group, 1992 - present; President, Canadian Forum for Biological Control, 1993.

Interests: Microbial control of insects, diseases of beneficial insects, regulation and safety of microbial control agents.

TRUSTEE



Anthony William Sweeney

Education: B.Sc.Agr. (Hons) 1963, University of Sydney; M.Sc.Agr. 1967, University of Sydney; Ph.D. (Med.) 1977, University of Sydney

Experience: 1963-1969: Entomologist, Malaria Service, P.N.G. Health Department, Rabaul, Papua New Guinea;1970-1986: Research Officer, Army Malaria Research Unit, Ingleburn, New South Wales, Australia; 1987-present: Commanding Officer, Army Malaria Research Unit; 1980-1981: Research Affiliate, University of Sydney; 1982-1990: Honorary Associate Fellow, University of Sydney.

Membership: Member of: Australian Entomological Society, American Mosquito Control Association, Society for Invertebrate Pathology; Vice-Chairman, Division on Microsporidia, Society for Invertebrate Pathology, 1988-1990; Chairman, Division on Microsporidia, Society for Invertebrate Pathology, 1990-1992; Member, Founder's Lecture Committee, Society for Invertebrate Pathology, 1990-1993; Member, Editorial Board, Journal of Invertebrate Pathology, 1991-1993.

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Interests: Microbial control of disease vectors with microsporidia and fungi. Research and development of new candidates for biocontrol of mosquitoes.

TRUSTEE



Isabelle Thiery

Education: M.S. (Zoology) 1977; Thesis 3rd cycle (General Entomology) 1980 University Paris XI; Ph.D. (Entomology and Ecophysiology of Invertebrates) 1988 University Paris XI.

Experience: Research student, I.N.R.A. La Minière, France 1978; Research Engineer since 1978, Bacteries Entomopathogènes, Institut Pasteur, Paris, France.

Membership: Member, Society for Invertebrate Pathology, 1979-present; Member of the Entomological Society of America; Member of the American Society of Microbiology; Member of the Society for Vector Ecology; Chairman, Society for Vector Ecology European region, 1991.

Interests: Microbial pathogens of Invertebrates, particularly *Bacillus* sp. Research and selection of entomopathogenic bacteria (*Bacillus thuringiensis* and *Bacillus sphaericus*). Standardization of bacterial insecticides. Toxicology. Biological control of mosquitoes and agricultural pests.

CANDIDATES FOR HONORARY MEMBERSHIP

Honorary membership is the highest honor the Society can bestow. Persons are nominated by petition containing signatures of at least 10 members in good standing. These petitions, along with documentation of the accomplishments of the member and his or her contributions to the Society, are presented to Council for approval. If approved, they are presented to the membership for vote.

DR. H.D. BURGES

Career: Denis Burges obtained his Ph.D. in Entomology at the University of London, UK in 1966. He began his career with the Pest Infestation Control Laboratory, Slough, UK, working on the biology of storage insects and the physics of stored grain and was promoted to Principal Scientific Officer by 1970. He then took up an appointment with the Glasshouse Crops Research Institute (GCRI) Littlehampton, UK, where he became Head of the Insect Pathology Section which he built up to be one of the largest single Insect Pathology groups worldwide. A sabbatical year at the University of California, Berkeley, together with visits to many Insect Pathology laboratories in the USA and Canada greatly enhanced his knowledge of microbiology. In 1982 Denis was awarded a DSc by the University of London for his research on entomology and insect pathology. Following 44 years of a highly productive career as an entomologist and insect pathologist, Denis retired from the Glasshouse Crops Research Institute (now Horticulture Research International, Littlehampton) in 1987 and has since remained active as a consultant.

Scientific Achievements: During his research at the Pest Infestation Control Laboratory, Denis designed a new vacuum operated spear for sampling bulk grain which was commercially adopted and a sensitive respirometer for use with single, small insects. He also designed and tested a number of commercial installations for the cooling of grain by controlled aeration and his method was widely adopted in the UK. Denis' studies on *Bacillus thuringiensis* (Bt) began in 1961 and he was one of the first scientists to demonstrate the dosage-mortality relationship of Bt using probit analysis.

Following his sabbatical in the USA, Denis created a research programme involving laboratories worldwide which culminated in the acceptance of standardisation by bioassay and the adoption of E61 as the first international Bt standard. Much progress was made with his research on the wax moth, *Galleria mellonella*, showing that Bt plays a major role in pathogenicity in this species. Denis joined Howard Dulmage's International Programme to Investigate Bt Strains and his work with *Galleria* was the only study in this programme to obtain LC50 values for all possible strains. His research at GCRI produced many different methods to control whole pest complexes. With colleagues, his research on *Verticillium lecanii* resulted in commercial products for aphid and whitefly control. A

new transconjugant strain of Bt, GC91, tailored to the Lepidoptera pest complex by plasmid transfer has formed the basis of a new commercial Bt product developed by Ciba-Geigy. His expertise and knowledge gained from his extensive research also provided Denis with the opportunity to play a leading role on many international committees set up to formulate safety guidelines. He is an outstanding editor and his texts on insect pathology and microbial control are important reference works and a delight to read.

Service to the Society for Invertebrate Pathology: Denis joined the SIP at its inception as a Charter Member and in 1973 chaired the Nominations Committee. In 1976 he became a Trustee on Council followed by Vice President and President, continuing to serve on various committees and as UK dues collector to the present day, 16 years of continuous and enthusiastic service. He was a member of the Organizational Committee for the Division on Microbial Control and has been a member of both the Microbial and Microsporidia Divisions since they were formed during which time he surveyed, for the Microbial Control Division, the use of Bt for practical pest control across the world.

DR. H. de BARJAC

Career: Having completed her degrees at the Pasteur Institut, Huguette de Barjac took up appointment as a research worker in the National Center for Scientific Research Program; she then became Assistant at the Pasteur Institut during which time she was awarded a Ph.D. by the Sorbonne University; Huguette later became the first woman to be appointed as Head of Laboratory at the Institut. The impact of Dr. de Barjac's work on the field of insect-pathogenic bacteria has earned her a Professorship of the Pasteur Institut (1980) and also Distinguished Visiting Professor of Rutgers University, USA (1984). Until 1 January 1993, when she retired, Huguette was Head of the Research Unit of Entomopathogenic Bacteria which has also been a Reference Centre for the World Health Organization since 1981.

Scientific Achievements: Dr. de Barjac has made advances in bacteriological control of insect pests in agriculture and forestry as well as insect vectors of tropical diseases (mosquitoes and black flies) the results of some of which led to commercialization in Europe of two bioinsecticides based on *Bacillus thuringiensis* (Bt). One of Huguette's major achievements in the field of entomopathogenic bacteria was to establish a rigorous classification of Bacillus sphaericus. She has been instrumental in devising standardized bioassays, in producing and distributing International Standards, and in rapidly investigating the insecticidal host range and potential of new strains. Her repository for insecticidal Bacillus is a resource for the future. Her membership of various scientific committees has imparted her expertise to such bodies as the General Delegation to Scientific and Organization, Technical Research, World Health International Committee on Systematic Bacteriology, National Institute of Industrial Property and Centre for Biological Control of Mosquitoes. Huguette has travelled throughout Europe, USA, Canada, India, China, Japan, Asia and Africa and has earned international recognition.

Service to the Society for Invertebrate Pathology: Huguette has been an active member of the Society and has actively motivated young colleagues to participate with the same conviction and to assume responsibilities in the many different international activities of the Society.

Dr. M. B. MARTIGNONI

Following his employment as a Research Career: Assistant with the Commonwealth Institute of Biological Feldmeilen, Switzerland, Dr. Martignoni Control. undertook research and teaching at the Swiss Federal Institute of Technology, Zurich. He then became Consulting Biologist to the Food and Agriculture Organization of the United Nations, Rome, and in 1956 was awarded a Ph.D. for his thesis on insect virology by the Swiss Federal Institute of Technology. He later took up post as Entomologist at the Swiss Forest Research Institute, Zurich, which was followed by a move to the Department of Biological Control and Department of Entomology and Parsitology, University of California, Berkeley, where he lectured on Insect Pathology, undertook research in Entomology and Parasitology, and in 1963 became Associate Professor of Invertebrate Pathology. From 1965-85 he became Principal, then Chief Microbiologist at the Forestry Sciences Laboratory, USDA, Corvallis during which time he was also Professor at the Oregon State University, Corvallis where he continued his teaching activities. Following his retirement in 1985, Mauro has continued as a private consultant in invertebrate pathology and microbial control, specializing in viral diseases of insects.

Scientific Achievements: Mauro has made significant contributions to invertebrate pathology as both a teacher and a researcher and has participated in developing the first formalized curriculum of insect pathology in the USA and in training some of the first "professionally recognized" insect pathologists. In later years, his research was more specifically directed towards insect viruses of caterpillar pest of forests and through his pioneering efforts, obtained the data necessary to register the Douglas-fir tussock moth virus, this virus being the first virus ever registered for use in a forest ecosystem.

Service to the Society for Invertebrate Pathology: Mauro, as a founding member of SIP, was a member of the first organizing committee that established the SIP which prepared the draft SIP Constitution and Bylaws. He also chaired the Revision Committee to produce the SIP Constitution and Bylaws. As well as being a technical adviser during the establishment of the Journal of Invertebrate Pathology and serving as a member of the Journal's Editorial Board he has served as Trustee of the He has served as a member of the Virus Council. Subcommittee of the Culture Collection Committee and actively participated in several SIP meetings as chairman and program co-chairman. In addition, Mauro has made considerable contributions to the Society in drafting and revising the Abridged Glossary of Terms used in Invertebrate Pathology, the Catalog of Viral Diseases of Insects, Mites and Ticks and the computer-based fully indexed Bibliography of Viral Diseases of Insects and Other Arthropods which is currently available in Washington, D.C. (USDA).

TREASURER'S REPORT September 1993

Acting SIP Treasurer Donald W. Roberts outlined the changes that have occurred within this office in his report in the SIP Newsletter (1992, vol 24 (3):13-14). As the new Treasurer since August, 1992, I am more involved with fiscal policies than with the labor-intensive tasks of mailing dues notices and receiving dues. These tasks have been contracted out to FASEB. However, the Treasurer still oversees the spending of funds. Funds are only expended with the approval of the Council or for items that are considered normal expenditures (e.g., SIP Newsletter, mailing of Newsletters and ballots, Founders Lecturer, Student Awards, etc.). During the past year, I prepared a budget for the next fiscal year (1993-1994), recommended that SIP change its fiscal year from September 1 to August 31 to May 1 to April 30 at no cost (approved by the SIP Council), recommended that SIP examines its policy on Sustaining Members, and suggested that awards given at its annual meeting have a corporate sponsor. A major change has been the shift of the fiscal year. Because all

accounting is maintained by FASEB, the fiscal year September 1 to August 31 made it very difficult for the Treasurer to know how much was being spent during the year. It was also difficult to prepare a new budget becau accounts could not be reconciled by FASEB until well in September (it takes about 4-6 weeks to close the books for the fiscal year). Because the annual SIP meetings an usually held between mid-July and the end of August, the Council did not know exactly what was in the Treasur until well after the meeting was over. Accordingly, th change will provide a better fiscal picture on the operations of SIP from year to year at its annual meeting Thus, the balance sheet in my report is for the perio from September 1, 1992 to April 30, 1993 (9 months) Finally, with the change in the fiscal year, the outgoin Treasurer can provide a clearer fiscal picture to th incoming Treasurer at the Council meeting.

I am pleased to report that funds in the amount o \$18,373.37 (US) (=33,287.24 Dutch guilders) from the 4th International Colloquium of Invertebrate Pathology a Veldhoven in 1986 and \$10,504.11 (US) from the 25th Annual Meeting at Heidelberg in 1992 have been deposited in the SIP treasury. These funds have been added to "Society Operations" and will be accounted for it the balance sheet for 1993-1994. However, by simpl addition of "Cash:Money Market and Savings" under "Assets" in the "Society Operations," the amount of mone in "Money Market and Savings" is \$68,250 (unaudited) Moreover, approximately \$3000 (US) which are still in the long-term account in Germany from the Heidelber meeting will be transferred to Dr. Max Bergoin, organize of the 6th International Colloquium for Invertebrat Pathology at Montpellier, France in October, 1993. Th Veldhoven (R.A. Samson, J. Vlak, and D. Peters) and Heidelberg (J.Hüber and N. Becker) organizers are to b complimented for the high quality of the scientific program at both of these meetings and for keeping expenses at minimum with a significant return of funds to SIP.

Although the financial health of SIP appears to be good for the short-term, the Society needs to look at its long term health, keep expenses at a minimum, and maintai an adequate reserve to serve its needs without increasin dues.

Harry Kaya Treasurer

Society for Invertebrate Pathology

October 1993

	EXHIBIT A						EXHIBIT B				
		-	Society for Invertebrate	2 Pathology				State	ment of Revenue and	Expense	
Ì			Balance Shee	1			For t	he Period Au	gust 1. 1992 to April 30), 1993 (Nine Mo	<u>nths)</u>
			<u>110(1) 30, 175</u>	*					Microbial		
				Microbial				Society	Microsporidia	Control	F
		Society	Microsporidia	Control	Endowment		2	Operations	Division	Division	L
	1.00 Fime	Operations	Division	Division	Fund	Total	REVENUE				
	ASSEIS						Slide sales	\$ -	S -	\$ 6.069	
	Cash:						Membership Dues(Note B)	19,404	140	630	
	Chequing Account	S -	S -	\$ 2,102	S -	\$ 2,102	Contributions (Note D)	5,684	-	-	
	Money Market						Special Publication Sales	25		65	
- 1	& Savings	42,283	388	319	5.329	48.319	Dues Handling Fees	243	-	-	
	6 137 7	42,283	388	2,421	5.329	50.421	Interest	988	-	36	
	Seed Money for						Miscellaneous Income	338	:	49	
- 1	Puture Meetings										
	(Note A)	10,000	<u> </u>	<u> </u>	_ <u></u>	10.000	Total Revenue	<u>26,682</u>	<u>140</u>	6.849	
	I otal Assets	52,283	<u>\$_388</u>	<u>\$ 2,421</u>	\$5,329	\$60,421					
			-				EXPENSE				
	LIABILITIES AND F	UND BALANC	E				Addressing, mailing,				
	Liabulues:						and shipping;				
	Account Payable						Directory	1,686	•	-	
	(FASEB)	\$ 357	\$ -	\$ -	\$ -	\$ 337	Newsletter	1,376	-	-	
a 8	(1004 Dues)						Other (Dues, Ballots, etc.)	2,053	-	71	
6	(1994 Dues)		<u> </u>	2	<u> </u>	32	Composition				
		3 307	<u>s.</u>	<u>\$_2</u>	<u>s.</u> -	\$ 369	and Printing:				
2	Ened Balance						Directory	1,355	-	-	
	Fund Balance.						Newsletter	2,185	-	-	
	August 1 1002						Office Supplies	1,737	-	-	
- 1	Linguist 1, 1992	42 1 47	• • •				Slides	-	•	3,265	
	Prior Period	43,147	248	1,838	5,019	50,252	Accounting Services	2,125	•	-	
	Adjustment						Subsistence and Travel				
I	(Note C)	2 010					Awards	4,800	-	-	
	Eurod Balance	-2710	_ <u></u>	<u>(2,910)</u>	_ <u></u>	<u> </u>	Dues Processing Fees	2,349	•	-	
	August 1 1002						Telephone	53	-	-	
	Adjusted	46.057					Duplicating	60	-	-	
	Aujusteu.	40,037	248	(1,072)	5,019	50,252	Hotel and Travel	500	-	•	
- 1	(Exhibit P)	5 6 6 6 0					Credit				
ļ	Fund Balance	7072	140	_3,491	310	<u>9.800</u>	Card Charges	450	-	-	
	A pr 30 1002	51 016	200				miscellaneous	94		22	
1	Apr. 30, 1933	71'310	388	2,419	5,329	<u>50.052</u>	Tatal Eman				
ļ	Total Lishilities						I otal Expenses	20.823	<u> </u>	<u>_3.358</u>	
	and Fund Ralan	\$ 53 393	* 200				NET DEVENTO /		•		
	with a num Datatille	<u>* 34.403</u>	<u>\$ 566</u>	5 2,421	<u>\$ 5,329</u>	<u>\$60,421</u>	MET REVENUE (Exhibit A) <u>\$ 5,859</u>	<u>\$ 140</u>	<u>\$ 3,491</u>	

See Accompanying Notes to Financial Statements

See Accompanying Notes to Financial Statements

<u>Total</u>

90

243

1,126 387

<u>33,983</u>

1,686 1,376 2,124

1,355 2,185 1,737 3,265 2,125

4,800 2,349 53 60 500

450 __118

<u>24,183</u>

<u>\$9.800</u>

\$ 6,069 20,174 5,894

Endowment _Fund__

s -

• 210

•

-102

-----:

<u>312</u>

-

-

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___2 ___2

<u>\$ 310</u>

Notes to the Financial Statements For the Period August 1,1992 to April 30, 1993 (Nine Months)

Note A: Seed Money for Future Meetings

"Seed Money for Future Meetings" consists of the following:

Banff Meeting - 1997	\$ 2,000
Montpellier Meeting - 1994	5,000
Asheville Meeting - 1993	3,000
	<u>\$10,000</u>

Note B: Membership Dues

Membership dues revenues represents amounts collected during the current period for the calendar year 1993 and 1992. Dues have been collected from the following membership categories:

	Society Operations	Microsporidia <u>Division</u>	Control Division	n <u>Total</u>
Full Member (589 @ \$30)	\$ 17,670	\$ -	\$ -	\$ 17,670
Student Member (74 @ \$15)	1,110	-	-	1,110
Microsporidia Member (68 @ \$2)	-	136	-	136
Microbial Member (301 @ \$2)	-	-	602	602
Prior Year's Collection (1992)	<u>624</u>	4	28	656
	<u>\$ 19,404</u>	<u>\$ 140</u>	<u>\$ 630</u>	<u>\$ 20,174</u>

Note C: Prior Period Adjustment

"Prior Period Adjustment" represents an amount (\$2,910) which was expensed for slides in 1992 in the Society Operations Department instead of the Microbial Control Division.

Note D: Contributions

Contributions Revenue consists of the following:

	Society	Endowment	
	Operations	Fund	Tota
Environmental Protection Agency	\$ 5,000	\$	\$ 5,000
Member Contributions	<u>.684</u>	<u>210</u>	894
	\$ 5,684	\$ 210	\$ 5.894

COMMITTEE REPORTS

Newsletter Report

Three issues of the Society for Invertebrate Pathology Newsletter were produced in the 1992-1993 year. These Newsletters comprised 54 pages of text. In addition, members received the Program and Abstracts for the 1992 meeting, a 35-page Membership Directory with addresses, telephone numbers and fax numbers, a Supplement to the Directory of Industries Involved in the Development of Microbial Control Products, as well as the forms for registration, housing, and the 5K race at North Carolina. In addition to announcements, reports and news of the meetings, features included laboratory and industrial profiles, profiles of the new officers, editorials, a forum for discussion and a short article reprinted from another The Microbial Control and Microsporidia iournal. Divisions also reported news of interest to their members. Text was prepared in Arizona, but printed and mailed by We appreciate the excellent FASEB in Maryland.

cooperation of FASEB in producing our Newsletter. We also wish to thank Jennifer Ashley whose expertise with computer desktop publishing has contributed significantly to the appearance of the Newsletter.

We are grateful to all the members who contributed material to the Newsletter this year, and encourage any member to send news of interest to the Society.

Financial Report, July 1992-June 1993

Office Expenses at ASU: Computer Specialist: Photocopies and telephone: Bank charges: Interest:	\$ 525.00 108.03 98.33 + 13.22
Total Expenses at ASU:	\$ 718.14
Balance on hand at ASU:	376.47

Expenses at FASEB:	(note: t	these	will	also	appear	on
Treasurer's report)						

	July	Nov.	Feb.
	1992	1992	1992
Printing	952.00	1,430.40	754.50
Addressing	172.50	153.75	258.70
Postage	5,798.24	522.90	1,590.29
Envelopes	110.00	110.00	110.00
Total	\$ 7,032.74	\$ 2,217.05	\$ 2,713.49

Total expenses for printing and mailing 3 issues with program and abstracts: \$ 11,963.28

Total cost of Newsletter (3 issues): \$ 12,681.42 Newsletter and Program and Abstracts cost per member based on 665 current members: \$ 19.07

Elizabeth W. Davidson, Editor Mark S. Goettel, Assistant Editor

Site Selection Committee Report

The confirmed and tentative sites for SIP meetings through 1998 are as follows:

Year	Site	<u>Dates</u>	<u>Status</u>
1994 ¹	Montpellier	Aug.28-Sep.2	Confirmed
	France		
1995	Ithaca	July 16-21	Confirmed ²
	New York		
1996	Segovia	Sep. 1-7	Confirmed
	Spain		
1997	Banff	Aug. 24-30	Confirmed
	Alberta		
1998 ¹	Sapporo	September?	Tentative
	Japan	-	

¹International Colloquium ²Site confirmed, but dates are tentative

Brian A. Federici, Chair

Report of the Endowment Committee 1992-1993

For 1993 the committee nominated for endowed membership 10 invertebrate pathologists from 9 countries (Algeria, Brazil, Peoples Republic of China, India, Moldavia, Poland, Romania, Russia, Yugoslavia). Nine members endowed last year were nominated, and one new member was nominated. Two members endowed last year paid for their memberships for 1993.

A short note about the endowment was written for the Society Newsletter asking members to consider donations to the endowment. Donations of \$ 210 were received by April 30, 1993. We encourage all members to contribute to the Endowment Fund. These contributions help our colleagues from soft currency countries by providing them with all the benefits of membership in the Society. The information provided through the Newsletter keeps these members informed about activities in our field and in the Society.

Because of the low interest rates only \$ 102 were available from interest, which would have allowed for only 3 memberships. It was decided that the \$ 210 in donations this year would also be used to support other memberships. We will explore with Council the possibility of placing endowment funds in a higher yielding account.

L. Lacey T. Poprawski G. Soares, Chairman

Founders Lecture Committee Report

The 1993 Founders Lecture was presented at Heidelberg, on Monday, August 17 during the SIP meeting by Dr. Alain Vey, honoring Dr. Muller-Kogler. The Founders Lecture Committee convened on 20 August 1992. Members present were Dr. Clay McCoy, in the Chair, Dr. Richard Daoust and Dr. Tony Sweeney. An apology was received from Dr. Carlo Ignoffo who was unable to attend the meeting. It was agreed that the position of Chairman for 1993 should rotate to Dr. Sweeney. Throughout the course of the SIP meeting members of the Committee canvassed various members and groups to solicit nominations for the 1993 Honoree and Lecturer. After considerable discussion it was agreed that the Honoree should be the late Dr. N. Couch formerly of University of North Carolina at Chapel Hill. Dr. Couch was an internationally renowned scholar who made a major contribution to insect mycology, particularly with his pioneering studies on Septobasidium and Coelomomyces. His work has been a seminal influence in the development of insect mycology. His selection was deemed most appropriate and in keeping with the tradition of choosing an Honoree from the area to which the Annual Meeting was to be held.

After further considerable deliberation it was decided to offer the task of Lecturer to Dr. Howard Whisler, of the University of Washington. Dr. Whisler had extended Dr. Couch's work on *Coelomomyces* by discovering the intermediate host which revealed the complete life cycle and it was felt that he was a most fitting choice for this accolade. Dr. Whisler subsequently agreed to present the lecture at the 1993 meeting of SIP at Asheville, North Carolina.

The text of Dr. Vey's presentation has recently been transmitted to Dr. Sweeney and is in the final stages of editing before submission for publication in the Journal of Invertebrate Pathology.

A.W. Sweeney Chairman Founders Lecture Committee

Membership Committee Report July 7, 1993

SIP 1993 Members by Region

361	Canada	46
162 2 4 5 3 34 1 5 7	South America Argentina Brazil Costa Rica Domincan Republic Mexico Venezuela	26 3 12 1 8 1
5 5 7 6 65 13	Middle East/Africa Egypt Israel Jordan Turkey Kenya South Africa	20 3 11 1 2 1 2
109 28 1 13 1 39 1 8 4 1 4 1 4 3	Eastern Europe Czechoslovakia Poland TOTAL	3 2 1 727
	361 162 2 4 5 3 4 1 5 7 5 5 7 6 65 13 109 28 1 13 1 8 4 1 4 1 4 1 4 3	361Canada162South America2Argentina4Brazil5Costa Rica3Domincan Republic34Mexico1Venezuela5Middle East/Africa5Egypt7Israel6Jordan65Turkey13KenyaSouth Africa1092828Eastern Europe1Czechoslovakia13Poland1139114133

Composition of SIP Membership: Membership in the SIP has slightly declined, with approximately 727 members (down 6.5% from 777 members in 1992). We need to do something different to increase growth of the Society. Since our annual meetings are the Society's major attraction for its membership, as well as its major source of funds, it is recommended that we place our membership, advertising and PR emphasis on SIP meetings during 1993/1994. Suggestions are printed below under "Suggested Agenda Items".

1993 SIP Membership by Region



Activities During 1992/93: Key projects included distribution of SIP information and membership forms at professional meetings, investigation of fund raising strategies (including the creation of a fellowship level in the SIP) and initiation of the process of translation of membership applications into Spanish, Portuguese and French.

The Membership Committee: The Membership Committee for 1993/94 consists of Lerry Lacey, James Becnel, Robert Anderson, Harry Kaya and Wendy Gelernter.

Suggested Agenda Items for Council Meeting:

* Review of Bylaws governing Honorary Membership (are Bylaws reasonable? fair? give equal opportunity to non-North American members?)

* Advertising the 1994 SIP meeting: mailings? paid advertisements in scientific society newsletters and journals?

* Fund Raising Options: sale of abstract books? fellowship category for members? fund raising drive?
* Making the SIP meetings more attractive to specialized pathologists (virologists, bacteriologists, etc).

Submitted by Wendy Gelernter

Report of the Program Committee June 18, 1993

The Program Committee solicited requests for symposia topics during the Heidelberg meetings in 1992 and through a call in the November 1992 SIP Newsletter. Call and instructions for submission of contributed papers, posters, and student papers and posters were made in the February 1993 SIP Newsletter. Nine symposia made up of a total of 45 presentations were developed from suggestions of members and the program committee. An additional 124 submitted titles were received in time to be included in the These included 72 regular oral printed program. presentations, 11 student contest oral presentations, 37 regular poster presentations, and 4 student poster competition presentations. In addition to the formal presentations, the program included the council meeting, opening mixer, registration, opening session with presidential remarks and founders' lecture, two divisional workshops, two divisional business meetings, 5-K race, optional trip to Chimney Rock with recreational activities and pig-pickin', formal banquet on the Biltmore Estate, and candlelight tour of the Biltmore House with dessert following.

The published program was assembled in copy ready form following an April 15 deadline for abstracts and other materials. It was delivered by hand to FASEB on May 18 to be printed and mailed to all members with the June Newsletter. Both the Newsletter and Program were mailed from FASEB on June 8 and were received by some members as early as June 10. International members were to receive delivery through our international distributors. By mailing early, ensuring delivery in ample time, third class postage for U.S. and Canadian members and using distributors, a savings of ca. \$1400 was realized to the Society.

Several features were added to the program this year. These included a color cover, a week at a glance located just inside the first cover and colored slightly for quick and easy finding, an author index by abstract number, a map of the conference center room layout, and day and date at the top of each page of the running program section. In addition, student contest paper presentations were grouped at the first of a presented paper session containing papers on the same subject area, both for ease of judging and for visibility of the papers and students. There is no conflict of overlapping student papers for the judges.

Respectfully submitted,

Wayne M. Brooks Clinton Y. Kawanishi James D. Harper, Chair

Report of the Representative for the International Union of Biological Sciences (IUBS)

The Society serves as the Commission on Invertebrate Pathology in the IUBS. The activities of the Society are the activities of the Commission. Recognition of the Society to serve as the Commission was petitioned by President C. Vago during his term for the Society in 1972. As the Commission, the Society is an adherent to the IUBS which serves as a Non Governmental Organization (NGO). As a NGO, the IUBS can address international issues through the specialized agencies of the United Nations (UN). Among the specialized agencies of the UN with which the Society has mutual interests are the Food and Agricultural Organization (FAO), the World Health Organization (WHO), the United Nations Industrial Development Organization (UNIDO), and the United Nations Educational, Scientific, and Cultural Organization(UNESCO).

The 20 International Scientific Unions, Scientific Associates, and Special Committees are held in an organization identified as the International Council of Scientific Unions (ICSU). In addition to IUBS, there is the International Union of Microbiological Societies, the International Union of Biochemistry, and the International Union of Pure and Applied Chemistry. Within the Unions are Commissions with which Societies are identified in the same manner as the SIP serving in the IUBS. Largely, the Unions and other elements within ICSU serve to facilitate information flow, particularly through meetings. Within the past 20 years, the SIP has had funds from the IUBS, once in the form of a direct grant to assist in the attendance of individuals in a Colloquium, and once in the form of a loan advanced to the SIP to assure "start-up" funds for an international colloquium. The loan was not used; however, it is not out of the question to solicit funds from IUBS for special meetings, particularly where registration fees may not be appropriate. On another occasion, when there were questions with respect to the disposition and care of Type materials for the

Microsporidia, the Commission on Type Collections within the International Union of Microbiological Societies (IUMS) was solicited as a source of funds to address the issue of type collections of particular interest to SIP. In this instance individuals within the Division on Microsporidia and individuals from The Smithsonian Institution assumed the burden of the question rather than to have an international group other than the SIP address the issue.

The international scientific structures represented in ICSU are funded by contributions from nations who are members of the Scientific Unions. The authorities for requesting funding and approving expenditures are generally national science bodies e.g., the United States National Academy of Sciences. Funding is rarely identified through the United Nations. The Unions, the Commissions, and Committees are accessed through individuals, like John Briggs, who are identified by scientific Societies. One benefit which SIP receives from its Commission status is that the field of Invertebrate Pathology is recognized as addressing an important international endeavor as judged by the community of individuals who are representatives of internation scientific interests. Further, the activities of the Society are brought to the attention of other scientific organizations for invertebrates, parasitology, and microbiology. This recognition can be important in the event that the SIP should wish to co-sponsor sections of a program in an international Congress; for example, an international Congress of Biochemistry or Parasitology, or Entomology.

A Year Book published by ICSU provides a directory of representatives of all groups in the Scientific Unions, their addresses and FAX numbers. The ICSU Year Book is valuable also for the unofficial calendar of meetings of In addition, ICSU publishes a Quarterly Societies. Newsletter: "Science International". In Science International, the SIP, as the Commission on Invertebrate Pathology for IUBS, can submit articles for publication, letters to the international community, and announcements. The Secretariat for ICSU is housed at the invitation of the French Academy of Sciences in Paris. An office is also maintained in the Headquarters of UNESCO.

As the person identified as the contact for the Commission on Invertebrate Pathology for IUBS, I report biennially to the IUBS Secretariat in Washington, D.C. My reports have been limited to a statement of meetings convened by the SIP, and developments within the Society, particularly Divisions, e.g., for Microsporidia, and for Microbial Control. In consideration of the enormous growth in the use of microbial agents in agriculture and for the interruption of vector borne diseases of humans, and the attention of the Society to the infectious diseases of all beneficial invertebrates, it is appropriate for the Society to submit a manuscript for publication in *Science International*.

John D. Briggs

DIVISION ANNUAL REPORTS

Division on Microsporidia Annual Report 1993

The Division of Microsporidia held its annual business meeting on August 18, 1992 at the 25th Annual Meeting of the SIP at Heidelberg, Germany.

Under old business Chairman Sweeney announced that the outcome of the ballot to increase the annual dues for the Division from \$1.00 to \$2.00 was unanimous in favor of the increase (43 to 0).

The Nominating Committee, made up of James Becnel, Joe Maddox and Ted Andreadis, recommended Timothy J. Kurtti for vice-chairperson and Leah S. Bauer for secretary. The nominations were accepted and passed unanimously. The present Vice-Chairperson, Ann Cali will become Chairperson.

Under new business the workshop for the 26th annual meeting to be held in Asheville, NC was discussed. Doug Streett suggested the possible topic of the different spore types found in *Nosema*. It was also suggested that Dr. Ishihara from Japan be invited to discuss this topic. Tony Sweeney suggested that David Onstad present an update on his new microsporidian database at next years' meeting.

Jimmy Becnel suggested that the Division provide a report for each edition of the Newsletter. This would include information about Division activities and activities at meetings other than the SIP. He volunteered to perform this duty for the upcoming year.

Ronny Larson's excellent talk on "Chytridopsis and its Relatives" presented at this year's workshop was acknowledged.

Ann Cali Chairperson

Division on Microbial Control Annual Report 1993

1992 Annual Meeting: The annual meeting of the Division was held on Tuesday 18 August, 1992 from 1300-1400 with approximately 30 members present. The 1992 annual report was summarized and approved by the members. Jeff Lord was elected to a two-year post as Member-at-Large. Wendy Gelernter initiated discussion concerning standardization and bioassay of microbial control agents. The discussion resulted in the formation of a Subcommittee to explore the publication of a document on standardization. Dr. Gelernter was elected as Chair of the Subcommittee. Following discussion of workshop and symposia topics and possible honorees for the Founder's Lecture, the meeting was adjourned. For detailed minutes of the meeting see Newsletter Vol 24, No. 3, pg. 17.

Committee Activities: The Division sponsored a symposium entitled "Assay and Standardization of Microbial Insecticides" and a workshop entitled "The Effect of Artificial and Natural Light on Entomopathogens" during the 1992 Annual Meeting. Both sessions were well attended.

The Division will sponsor a symposium entitled "Use of Microbial Insecticides in Crop Protection" and a workshop entitled "Recent Activities in Product Registration" at the 1993 Annual Meeting.

The "Directory of Industries Involved in the Development of Microbial Control Products" sold out in June, 1993. A supplement was published and included with a Newsletter mailing. The Division plans to update the document in the next fiscal year and make it available to all members in good standing.

The slide atlas was completed and 250 copies were prepared. To date, 131 copies have been sold at a cost of \$ 50.00 each.

Several articles concerning events pertinent to the Division were published in a section of the SIP Newsletter entitled Microbial Control News. The Division continues to solicit articles. If any members have information that would be appropriate, please submit one or two paragraphs to the Division chairperson or to one of the Newsletter Editors.

Memberships and Finances: There are 332 members in the Division paying dues this year. This is an increase of 69 members from last year. We continue to urge members with an interest in microbial control to join the Division.

For the period August 1, 1992-June 30, 1993 (From Ann Hajek):

Funds on hand (August 1, 1992)	\$ (1072)	
Revenue:		
Dues	\$ 664	
Sale of Directory	150	
Sale of Slide Atlas	6737	
Interest	41	
Total	<u>\$ 7592</u>	
Expenses:		
Postage:Directory	\$ 74	
Postage:Atlas	345	
Slide reproduction	3266	
Total	<u>\$ 3685</u>	
Balance	<u>\$ 2835</u>	

Report of the Division on Microbial Control Safety Publication Subcommittee

The Subcommittee was formed as a result of a motion made during the Division's Business Meeting on August 2 in Asheville. The terms of reference for the committee were to investigate "writing and Division support of a document to investigate the pros and cons of host range and safety of microbial control agents." The committee, comprised of Denis Burges, Richard Daoust, Michael Dimock, Mark Goettel (chair), Jean Irvin, Peter Gothro, James Kerwin, Lerry Lacey, Clayton McCoy, Amy Plato, Chris Prior, William Rice, Stephen Woods, James Wright and John Vandenberg, met on Wednesday, August 4.

After much discussion and debate, the committee recommended that the Division sponsor a symposium on host range and safety at the International Colloquium in Montpellier and that the symposium be published as a proceedings. Members of the committee were willing to help in organizing such a symposium if requested by the Division Executive.

Mark Goettel

Chair, Safety Publication Subcommittee, Division on Microbial Control

MICROBIAL CONTROL NEWS

Field Release of Genetically Altered NPV

A field release of a genetically engineered isolate of the *Lymantria dispar* nuclear polyhedrosis virus (LdMNPV) was initiated in May 1993. The test is being conducted at the Otis Air Force Base on Cape Cod, MA in a collaborative research program which includes Alan Wood of the Boyce Thompson Institute, Joseph Elkinton, Vincent D'Amico and John Burand of the University of Massachusetts, James Slavicek of the US Forest Service, Delaware, Ohio, and Michael McManus and John Podgwaite of the US Forest Service, Hamden, Connecticut.

The recombinant LdMNPV field release was similar to the 1989 engineered AcMNPV field introduction in that it used the co-occlusion strategy to limit the persistence of the engineered virus in the environment. In the coocclusion strategy an engineered virus is constructed which lacks a polyhedrin gene and therefore, produces only nonoccluded virus particles, which are environmentally unstable. By co-infection of individual host cells with the polyhedrin-minus engineered virus and a wild-type virus (contains polhyedrin gene), polyhedrin protein is produced by the wild-type virus which then occludes (and protects) both types of virus particles.

The polyhedrin gene of the recombinant LcMNPV was replaced with a bacterial lacZ gene which codes for β galactosidase. Therefore, the recombinant LdMNPV is disabled with respect to persistence in the environment and produces β -galactosidase during replication.

The purpose of the field release is two fold. Firstly, the study will be used to evaluate the dynamics of the coocclusion process in a forest ecosystem. The data from the AcMNPV release in a row crop (cabbage) showed that recovery of the engineered form of the virus was smaller each year. It is anticipated that the recombinant LcMNPV may be lost from the population even faster because of the properties of a forest ecosystem.

Secondly, the release is being used to study the ecology of baculoviruses in nature. In the past it has been difficult to monitor viruses such as the LdMNPV in nature. Investigators are sometimes not sure if insect larvae are infected with the applied virus or an indigenous virus. Infection with the recombinant LdMNPV expressing β galactosidase provides a fast, simple and inexpensive identification method. Accordingly, it will be possible to follow the movement of the recombinant LdMNPV in time and space. This information will be useful in identifying more of the underlying principles which limit and promote natural LdMPNV epizootics.

The project is being sponsored by the Northeastern Forest Experiment Station of the U.S. Forest Service. The Forest Service registered the Hamden isolate of LdMNPV as a pesticide in 1978.

Alan Wood Boyce Thompson Institute Ithaca, NY 14853

Two Novel Pesticide Technologies Licensed

AgriVirion Inc. is a newly founded company which specializes in the discovery, development and commercialization of viral-based pesticides. The company employs a broad range of biological tools to enhance both the effectiveness and the inherent safety of baculoviruses, and is committed to the development of biopesticides as substitutes for synthetic chemicals.

AgriVirion President Dr. Lee Compton has announced the licensing of two novel viral pesticide technologies from the Boyce Thompson Institute for Plant Research (BTI). The licenses grant AgriVirion exclusive, worldwide rights to BTI's POV suicide virus insecticide and HeRD high density insect production patent applications. POV and HeRD were invented by Dr. Alan Wood and Dr. Patrick Hughes, respectively. Drs. Wood and Hughes are staff scientists at BTI, and are Chairman and Secretary of the Board of Scientific Advisors of AgriVirion.

HeRD is an efficient, flexible insect rearing system that can be used to produce virus insecticides, as well as pharmaceutical proteins made by genetically modified baculoviruses. The HeRD system makes it possible to produce viral insecticides at a small fraction of their former cost. The company is planning a pilot scale HeRD insect production facility in Ithaca, NY.

POV enables the creation of genetically enhanced viral insecticides that, following infection and death of insect pests, are inactivated within 48 hours. Previously, baculoviruses engineered to produce toxins or other compounds could persist in soil for decades, which raised environmental safety concerns. The POV technology is a suicide strategy which results in zero environmental persistence.

AgriVirion received approval from the Environmental Protection Agency and New York State Department of Environmental Conservation to field test a POV "suicide" insecticide in July of 1993. The test was conducted at the New York State Agricultural Experiment Station at Geneva, NY in collaboration with Dr. Anthony Shelton.

The corporate headquarters of AgriVirion, Inc. is at 460 West 25th Street, New York, NY 10001.

Alan Wood Boyce Thompson Institute Ithaca, NY 14853

Ecoscience Receives U.S. EPA Registration to Market and Sell Cockroach Control Product

EcoScience Corporation announced that it has received registration from the U.S. Environmental Protection Agency (EPA) to market and sell its patented biological cockroach control product. The Bio-PathTM Cockroach Control Chamber is the first product to use a naturally occurring microbial agent, instead of a synthetic chemical pesticide, to kill cockroaches. The current worldwide market for cockroach products at the manufacturer's level is approximately \$ 570 million, almost half of which is sold in the U.S.

EcoScience's patented chamber technology is a unique application of a natural microbial agent to control these household pests. After years of studying conventional means of cockroach control which require a roach to actively expose itself to a pesticide, EcoScience determined that the most effective way to kill cockroaches was to deliver a pesticide directly to the cockroach. Although used like a bait station, the Bio-Path[™] chamber has a dramatically different mechanism of action. Where traditional bait stations require the cockroach to eat a chemical pesticide, the Bio-Path[™] Cockroach Control Chamber is the first product to only require the cockroach to touch the microbial agent found within the chamber. The exposed cockroach can then spread the microbial agent to other cockroaches through any direct contact, known as Horizontal Transfer[™].

"The natural microbial agent used in our Bio-Path[™] Cockroach Control Chamber, which is widely present in soil throughout the world, has been evaluated in toxicology tests, and results show no adverse effects," said David W. Miller, Ph.D., Vice President, Research and Development at EcoScience. "We believe that the Bio-Path[™] chamber's unique mode of action, method of delivery and level of control will allow it to be used alone, or in combination with other cockroach control strategies."

According to Kevin J. Devine, Vice President of Sales and Marketing at EcoScience, first shipments of the Bio-PathTM chamber are expected within a few weeks. Initially, the product will be made available through professional pest control operators.

"The Bio-Path[™] Cockroach Control Chamber is the first biological pesticide to be approved by the EPA for cockroach control and is our first product to reach the marketplace," said James A. Wylie, Jr., President and CEO of EcoScience. "We believe that this novel product will provide an effective alternative to chemical pesticides for cockroach control, especially for applications around the home, in restaurants, schools and other institutional settings. We are currently building upon our proprietary Bio-Path[™] chamber technology to develop products for the control of other household insects, including ants and termites."

EcoScience Corporation, based in Worcester, MA, is engaged in the development and commercialization of environmentally compatible pest control products, including biopesticides, and horticultural products and growing systems. The Company has biopesticides under development for the control of insects, weeds, and diseases of plants, fruits and vegetables.

EcoScience Worcester, MA 01605 Press Release, May 13, 1993

Canadian Forest Service Opens New Insect Biocontrol Pilot Facility

In 1988, Canadian Forest Service-Forest Pest Management Institute initiated a project to assist in the commercialization of insect viruses. Traditionally, virus production has always been a cottage industry; this level of production was notoriously inefficient, expensive and not attractive for commercialization. The combination of these factors prevented the development of some of the most efficacious and environmentally safe pest insect control agents. Because of their unique host specificity insect viruses, in particular the baculoviruses (NPVs), are looked upon as excellent candidates for forest insect pest control, and are now at the forefront for product development. These viruses must be produced in, and purified from, living insect cells. Historically large numbers of insects were reared to be infected with a particular virus, and then kept until they die, at which time the virus was purified from the virus-laden cadavers. Besides being unwieldy, this process created favorable conditions for the growth of bacterial contaminants, adding yet another hurdle to industrial development.

In cooperation with the engineering skills of Hoogovens Technical Services Canada Inc. (HTS), the Insect Biocontrol Pilot Facility was officially opened on 24 September, 1993. The goal of the pilot facility is to investigate processes involved with efficient virus production. These data will allow for the development of a database to support a commercial infrastructure for the production of viruses of both forest and agricultural pest insects. Supporting this infrastructure is the intellectual property generated by a 40 year investment by Canadian Forest Service in microbial pest insect control.

The pilot facility contains a total of nine rooms for rearing insect larvae and processing material to the technical active ingredient. The diet preparation operation is located separate from the rearing rooms to ensure a virus free diet. The facility is highly automated using robots to dispense diets, insect eggs and to inoculate larvae. Harvesting of infected larvae and processing to recover the active technical ingredient is conducted by state-of-the-art technology. The equipment available in the processing facility provides for investigations to determine the optimum process for pathogen extraction from the host insect. The initial specifications of the pilot facility have allowed for the corporate needs of Canadian Forest Service and for research space for other corporate staff. As one measurement of success, this 800 sq. m facility has improved current technologies such that it can process 3 million virus-infected larvae in 20 days.

The technology and resources available at the Forest Pest Management Institute have already made it possible to develop a cost efficient commercial process for gypsy moth NPV production. The guidelines used to develop this process will facilitate the commercialization of other pathogens for pest insect control. We have also been able to investigate the cost effective expression of medically important proteins in insect larvae. There are opportunities for individuals of companies to undertake preliminary pilot facility tests with many other processes involving insect systems including the production of pharmaceuticals, predators and parasites as well as microbials derived from cell tissue culture. To investigate innovative ideas for use of this facility, please feel free to contact: Dr. William Kaupp, Coordinator, Insect Biocontrol Pilot Facility, Canadian Forest Service, Forest Pest Management Institute, 1219 Queen St. E., Sault Ste. Marie, Ontario, Canada. P6A 5M7. Phone:(705) 949-9461 ext.2510.

THE DIRECTORY OF INDUSTRIES INVOLVED IN THE DEVELOPMENT OF MICROBIAL CONTROL PRODUCTS

Supplement No. 1 was mailed to all SIP members with the last SIP Newsletter (vol. 25, no. 1, Feb. 1993). This supplement contains updated information and new listings. Due to heavy demand, several extra copies of the original directory (1991) have been printed. These can be purchased from John Vandenberg for \$US5.00. (See p.37 for address.)

We are planning to publish an updated version or a second supplement, depending on the need, in January, 1994. Deadline for submission of updates or new listings is 30 December, 1993. If you have new products not listed in the original Directory or in the Supplement, or if there have been changes, please inform me. We would like to make the Directory as current and comprehensive as possible.

Mark Goettel (See page 37 for address and Fax. No.)

Tripartite Agreement For Reduction of Pesticide Use In The U.S.

The Clinton Administration announced on Friday, June 25, 1993 its commitment to reducing the use of pesticides and to promote sustainable agriculture. This commitment will be implemented jointly by the U.S. Department of Agriculture, The Environment Protection Agency, and the Food and Drug Administration.

Agriculture Secretary Mike Espy, Environmental Protection Agency Administrator Carol M. Brownar and Food and Drug Administration Commissioner David A. Kessler, MD, released the following statement:

"We stand behind the safety of our food supply and will continue to be vigilant in our efforts to maintain that safety based on the best available science. We stand firmly behind the dietary guidelines put forward by the

Department of Health and Human Services and the U.S. Department of Agriculture in 1990, which state that fruits and vegetables form a vital part of a balanced, healthy diet, especially for children.

The Clinton Administration firmly believes it is the responsibility of government to look at every opportunity to improve the protection of public health. We plan to review and consider all of the recommendations made in the reports being issued.

The principles that will guide our legislative and regulatory proposals include the following:

The Clinton Administration is committed to reducing the risks to people and the environment that are associated with pesticides while ensuring the availability of costeffective pest management tools for agriculture and other pesticides users.

We will intensify our effort to reduce the use of higherrisk pesticides and to promote integrated pest management, including biological and cultural control systems and other sustainable agricultural practices, under the leadership of the USDA.

We will work side by side with American farmers to help test and implement improved and safer methods of pest management already used by many farmers.

We will promote development of safer pesticides by reforming our regulatory program to encourage registration of safer pesticides and by providing incentives to pesticide manufacturers to develop safer pesticides for urban and agricultural uses.

We are committed to the goals of reducing risks associated with pesticides for all Americans and especially of ensuring appropriate protection for children.

We expect to use the upcoming reports of the National Academy of Sciences and the Environmental Working Group on children and pesticides as a basis for formulating the legislative and regulatory policies needed to put the Administration principles into effect.

In addition to these reports, the USDA will soon be releasing its Pesticide Data Program Report, which will provide additional data on pesticide residues in food.

To promote these goals, the Clinton Administration is committed to working on an expedited basis with Congress and all interested parties to develop a package of proposals that can command the widest possible support."

U.S. Environmental Protection Agency

U.S. Food & Drug Administration

U.S. Department of Agriculture

Culigel® Technology:New Approach to Pest Management

The Lee County Mosquito Control District is pleased to announce that District-owned patents and technology related to Culigel® controlled-release systems have been assigned/exclusively licensed to STOCKHAUSEN GmbH/Inc., of Krefeld, Germany, and Greensboro, North Carolina.

Commercial development of Culigel[®] technology by Stockhausen is expected to provide the pest-control industry with a range of new products, and improved approaches to insect management. Income derived from the licensing agreement and subsequent sale of licensed products should provide substantial income to the District, and may help to offset the cost of mosquito control in Lee County, a benefit to all our taxpayers.

Culigel® technology was developed over the past five years by Dr. Richard Levy, a research scientist and employee of the Lee County Mosquito Control District, as a part of the District's research efforts to develop alternatives to chemical control of mosquitoes. This technology makes possible novel controlled release and water-management systems in both land and water environments. Culigel® utilizes non-toxic superabsorbent polymers in combination with materials used to control mosquitoes and other pests, and is formulated to release them at controlled rates when activated by water.

Manufacturing procedures allow pesticides to be formulated into pellets for distribution against a broad range of insects, or they can be used as water or oil-based sprays with excellent release characteristics. Using this technology, timed release of pesticides is possible, allowing the user to vary the application rate according to need. Also, these polymers can absorb up to 5,000 times their weight in water, allowing techniques of insect control without the use of a pesticide additive.

Lee County Mosquito Control District, P.O. Box 60005, Fort Meyers, Florida 33906 PH:813-694-2174 FAX:813-693-5011 T. Wainwright Miller, Jr., P.E., Director; Dr. Richard Levy, Research Scientist

A Rhabditid Nematode for Biological Control of Slugs

In a project funded by the Agricultural Genetics Company (AGC), the rhabditid nematode *Phasmarhabditis hermaphrodita* was found parasitising field slugs (*Deroceras reticulatum*) collected at Long Ashton Research Station (LARS) in 1988. This nematode had previously been recorded associated with slugs, but it was not considered to be a parasite capable of killing slugs. It has been demonstrated that *P.hermaphrodita* is a parasite which is capable of killing all pests species of slugs tested, as well as one species of snail which we have tested. Other tests have shown that *Lymnaea stagnalis* snails (vectors of liver fluke) are also susceptible. However, earthworms (*Lumbricus terrestris*) and carabid beetles (*Pterostychus melanarius*) are not affected by the nematode.

The nematode, like the insect-parasitic nematodes Steinernema spp and Heterorhabditis sp, produces nonfeeding 3rd stage infective larvae (dauer larvae), which are encased in the retained cuticle of the 2nd stage larvae. These live freely in the soil and infect slugs by entering the mantle cavity, where they grow and reproduce, causing a characteristic swelling of the mantle. Slugs are inhibited from feeding after a few days, thus protecting crops from damage. The slug dies eventually, usually after 1-2 weeks at 10°C. Nematodes spread and reproduce over the whole body of the slug cadaver, eventually once again producing dauer larvae, which move into the soil, ready to infect new slugs. Natural levels of parasitism of 30-50% of slug populations have been recorded at LARS. In view of these levels of natural infection it is likely that birds, and mammals such as hedgehogs, badgers etc. which regularly feed on slugs, must frequently consume nematode-infected slugs without harm.

The nematode is well adapted to soil temperatures at which slugs are active and we have found that it is capable of infecting slugs at temperatures as low as 5° C (the lowest temperature to have been tested).

The nematode is a bacterial feeder and species of bacteria have been selected which support good growth of the nematode in foam-chip and liquid cultures, and which produce nematodes capable of killing slugs. As a result, *P. hermaphrodita* is now produced by AGC in liquid fermenters in a pilot plant at Horticulture Research International, Littlehampton. Third-stage infective larvae are harvested and formulated by AGC in a friable clay.

Field experiments in Chinese cabbage, lettuce, potato,

oilseed rape and winter wheat show that the nematode is capable of protecting these crops from slug damage. In these experiments, the nematodes were applied as a liquid suspension, either using a watering can or standard spraying equipment. Methiocarb pellets were included as a standard control measure in all field trials and the nematode has been at least as effective as, or significantly better than, methiocarb. The nematode is capable of persisting for several weeks, in soil, but its effects on slug populations probably last for a matter of weeks, or a few months at most.

AGC have applied for a patent of use, which has just been published as International Patent No. WO 93/00816.

Agricultural Genetics Company Ltd. Cambridge, England

SLIDE ATLAS OF MICROBIAL CONTROL

There are only approximately 100 copies remaining. The slide atlas includes 200 slides and a 28-page legend covering selected examples of microbial control projects, application techniques, bioassay, and production and formulation of microbial control agents.

The slide atlas can be ordered by sending a check, U.S. money order, or an international bank draft (drawn on a bank with U.S. affiliations) in the amount of U.S. \$50 (add \$5.00 for overseas delivery). Make the check payable to the Society for Invetebrate Pathology. Mail orders to Dr. John Vandenberg, USDA-ARS Plant Protection Research Unit, U.S. Plant Soil & Nutrition Lab., Tower Road, Ithaca, NY 14853 USA.

Database of the World's Insect Pathogens

In 1992, Dr. David Onstad, University of Illinois, started development of a computerized ecological database of the world's insect pathogens. He has recently received financial support from the USDA's National Biological Control Institute to improve and expand the database. At the 1993 annual meeting of the SIP, Council agreed to formally support the database in non-financial ways. Such a database should prove useful to many SIP members. Dr. Onstad seeks your help. In this Newsletter you will find an insert in the form of background information and questionnaire. SIP members are urged to fill out and return the questionnaire to Dr. Onstad. Further information or copies of the questionnaire can be obtained from: David Onstad, Illinois Natural History Survey, 607 East Peabody Dr., Champaign, Illinois, 61820, USA.

The Editor

Division on Microbial Control Workshop: Recent Activities in Product Development and Registration

The workshop was held on August 2, 1993, in conjunction with the SIP Annual Meeting in Asheville, North Carolina. Judging by the attendance (over 100) and the discussions following the presentations, the Workshop was a resounding success. Following are brief synopses of each presentation. Product names used are the trademarks of the companies named in the same paragraph. Errors of omission or fact are mine, but please send corrections or additions to the SIP Newsletter Editor (Mark Goettel). And of course I must add that mention of these products and trade names is for informational purposes only and constitutes no express or implied endorsement by me, my employer or SIP.

VIRUSES

Doug Kolodny-Hirsch, Crop Genetics International: A division of this company focuses on viruses for control of pests of crops, fruits and ornamentals. Selective, compatible, cost-effective products are the goal. A joint venture with DuPont is underway in which CGI does the product development and registration and DuPont does the field testing and marketing. Three products are under active development: Spod-X (S. exigua mNPV), Gusano (A. californica NPV) and Cyd-X (codling moth GV). Spod-X was approved this year for use against the beet armyworm on many crops. Sales by DuPont will commence in 1994. The product will be marketed by Brinkmann in Europe with registration expected fall 1993.

Pat Vail, USDA Agricultural Research Service: A granulosis virus for the control of the Indian meal moth is being registered (by John Evans). The cost is approximately \$36 for 200 grams which will treat about 16 tons of dried fruits or nuts. The cost is competetive with methyl bromide fumigation and other available controls. The virus is of course much more specific than methyl bromide, but the specific market for the target pest is there.

M. Andermatt, Andermatt Biocontrol, Switzerland: (a short text sent by Andermatt was read by M. McGuire)

A codling moth GV, Madex, is produced. Against leafroller pests the product is Capex. A new venture combining *Beauveria brongniartii* and heterorhabditid nematodes for control of *Melolontha* is underway. The company has 19 employees and a goal of incorporating biological agents into pest control schemes wherever possible.

FUNGI

Jacob Eyal, W.R. Grace: Information on two products was presented. Grace has GlioGard registered for use against plant diseases. Grace is also developing *Paecilomyces fumosoroseus* (with Lance Osborne, USDA ARS) for control of whiteflies, thrips and aphids. Fermentations are at the 4500 liter scale now, and tier 1 toxicological studies are finished. Registration is expected within a few months.

Carol Ann Johnson, Ecoscience: The company is marketing the BioPath chamber which combines an attractant for cockroaches along with the pathogen (M. *anisopliae*) inside the chamber. The product is sold in packs of 6. Tier 1 tests for toxicity were done, and the registration process took about 2 years. Forty-eight states have now approved the product. The company also registered this product for control of filth flies, but has chosen not to market this application. They have also registered the technical grade active ingredient (as sprayable conidia and a powder) for roach and termite control in households.

Jim Kerwin, University of Washington: The California Department of Health Services is the registrant for *Lagenidium* for mosquito control. The research has been done in both California and Washington. Safety work was done by J. Siegel, J. Shadduck, J. Kerwin and others. Funding was obtained from WHO and state and federal sources. The fungus is registered in Washington, Minnesota, Florida and California. There is a cooperative effort underway with a private company in Davis, CA, for R&D on production.

Steve Wraight, Mycotech: Mycocide GH is the company's *B. bassiana* product for grasshopper and locust control. It is grown on a solid substrate using a proprietary system. Pilot tests yield enough to treat 2700 acres per run. The commercial prototype would yield 9000 acres per run. Production gives more than 70 billion spores per gram thus there is some formulation flexibility. Formulations as an oil flowable, an emulsifiable suspension and a wettable powder are anticipated. The product has a 2 year shelf life at 30°C. A filing for registration will be accomplished

in early fall, 1993. Tier 1 toxicity tests have been passed. Related work has been done or is planned in Africa, South America and Australia. Another fungus product for control of whiteflies will be field-tested in fall 1993 and an Experimental Use Permit is expected to be filed for 1994. Trial quantities of other fungi are produced in cooperation with research representing other companies and other institutions.

Bud Wright, USDA Agricultural Research Service: A conidial formulation of *B. bassiana* isolated from the boll weevil has been produced in cooperation with FCI in Phoenix, Arizona. The product, Naturalis L, is to be targeted for boll weevils, cotton pea hoppers and whiteflies on a variety of crops. Under Experimenal Use Permits for 2 years, tests have been or will be conducted in 11 states and more than 20 countries. Registration for use on ornamental crops is also expected.

Mr. Shwarz, Miles: (a short report was given by A. Hajek) The company's BIO-1020 is a dry granular formulation of *M. anisopliae*. Worldwide testing is in its 3rd season. Intended uses include crops, turf, citrus, structural pests and others. It is registered in Germany and Austria and registration is expected in other countries as well.

BACTERIA

Tom Bridges, Ciba-Geigy: The company is new to the Bt business, but they have screened 5000 strains and have a few products. Agree is from a transconjugated strain for use against Lepidoptera on vegetables. It has been used in Texas and Florida in 1992, in California in 1993 and its use in New York is pending necessary approvals. Design is a product for use on cotton and soybean. The company's formulation includes UV stabilizer and a rain-fastness ingredient. A product with Btk will be submitted for registration this year.

Richard Daoust, Ecogen: The company has 3 new product formulations: Foil-BFC is a Btk strain with the Cry3A gene for use against beetles on solanaceous crops. A patent has been obtained (or is pending?) on a new Cry3 gene (for use against Coleoptera). Condor-OF and Condor-G are for use on field crops and cotton versus *Heliothis* spp. and against the European corn borer, respectively. Cutlass is a product with improved residual and rain fastness for application on vegetable crops. Ecogen has made 3 recent corporate acquisitions in Israel, Australia, and the U.S. In addition, a new European division will concentrate on nematodes for pest control, Bt

screening and field product development.

Wendy Gelernter, Mycogen: A product called M-Peril is a 3rd generation engineered product for use against 1st generation European corn borer. The formulation is sand-based for dry application to corn whorls, and employs the company's trademarked cell cap system (with the toxin present in killed *Pseudomonas*). Activity of this product is comparable to Pounce (the current insecticide of choice).

Brian Melin, Abbott Laboratories: Dipel has been on the market for more than 20 years. A current problem with diamondback moth resistance exists. A new product, Centari, is an *aizawae* strain with a different toxin profile and works against the diamondback moth and armyworms.

Travis Glare, AgResearch, New Zealand: A Monsanto product, Invade, of *Serratia entomophila* for grub control has been commercially available for 3 years. It is produced in 1000 liter fermentors, and 1 liter treats 1 hectare. It is distributed from the manufacturer through contractors for application.

John D. Vandenberg, Secretary-Treasurer, SIP Microbial Control Division

OBITUARY



DR. HOWARD T. DULMAGE

Dr. Howard T. Dulmage died May 23, 1993 at the age of 69. He is survived by his wife, Eileen, who often joined him at our meetings, a daughter, son, brother and three grandchildren. Dr. Dulmage received the PhD degree from Rutgers University under the Nobel Prize winner, Selman Waksman. He was author of 69 scientific papers and several textbooks. He was retired from the United States Department of Agriculture, but remained active as

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a consultant until near his death. Dr. Dulmage was nominated for the position of Honorary Member of the Society for Invertebrate Pathology, and his name would have appeared on the next SIP ballot for approval of this honor. The following detailed description of his contributions to the field of invertebrate pathology is derived from the materials provided for his nomination.

Dr. Dulmage's scientific career spanned over 40 years, the last 30 years of which were spent in invertebrate pathology. Dr. Dulmage was employed from 1950-1962 by Abbott Laboratories, North Chicago, Illinois, where he obtained a thorough understanding of fermentation technology used in development of new antibiotics, although Abbott had not yet begun producing *Bacillus thuringiensis* products. His introduction to *B. thuringiensis* came when he joined Nutrilite Products, Lakeview, California, and was involved in development of semi-solid fermentation which led to the product "Biotrol BTB-183", one of the earliest commercial *B. thuringiensis* products. Although of low toxicity compared to today's products, it represented the first introduction of many farmers to the possibilities of microbial control.

In 1967 Dr. Dulmage joined the USDA laboratory in Brownsville, Texas, where he spent the remainder of his career. His research has had a major impact on the development of *B. thuringiensis*-based insecticides. Under his leadership, the Brownsville laboratory was responsible for transfer of a high level of technology to industrial and research laboratories around the world. Among the outstanding achievements of Dr. Dulmage during his period with the USDA include:

1. Discovery and development of the HD-1 strain which increased potencies and yields of *B. thuringiensis* products by 10- to 100-fold. The importance of HD-1 is indicated by the fact that this strain is still the active component of many leading products.

2. Development of the acetone\lactose coprecipitation procedure that is widely used to produce stable, easily handled small quantity dry powder formulations.

3. Dr. Dulmage was instrumental in demonstrating that potencies could only be accurately measured by bioassay and that the use of spore count was invalid as an indicator of potency.

4. Dr. Dulmage coordinated the representatives of several companies to develop a standardized bioassay procedure which was recognised as the "official" procedure used in

potency labelling.

5. In collaboration with industry, in 1971 Dr. Dulmage developed the first officially accepted standard based upon the HD-1 strain. A second standard was produced in 1982 under his chairmanship.

6. Dr. Dulmage organized an international program with 14 cooperating scientists to compare the spectrum of activity of different *B. thuringiensis* isolates. The results revealed unexpected activity ratios and complex spectra, apparently due to the presence of a large number of different toxins. These results, which came well before cloning of the toxin genes, clearly pointed out that the *B. thuringiensis* "toxin" was in fact a complex of toxins.

7. Dr. Dulmage recognised the importance of maintaining a well cataloged culture collection to bring order to the rapidly growing number of *B. thuringiensis* strains. The HD collection now numbers over 1100 *B. thuringiensis* isolates and is an invaluable source of genetic material. The collection is now housed at the USDA laboratory in Peoria, Illinois.

8. Dr. Dulmage prepared a monograph for the World Health Organization to assist developing countries in local production of dipteran-active *B. thuringiensis* strains. This booklet has enjoyed wide distribution.

Dr. Dulmage has been recognised by the Distinguished Service Medal of the USDA, elected as Fellow of the Royal Society of Entomologists (UK), Fellow of the American Institute of Chemists, and received certificates from the University of Nuevo Leon in Mexico where he taught and was advisor for several years. The Industrial Microbiology Research Laboratory at the University of Nuevo Leon was named the "Howard T. Dulmage Industrial Microbiology Laboratory" in his honor in 1988.

Dr. Dulmage was well-known by invertebrate pathologists in many countries, as he travelled extensively and hosted many scientists in his laboratory. Although he suffered from Parkinsonism in recent years, he still attended SIP meetings, the most recent in 1991, and contributed actively to our discussions.

A Letter About the Late Bill Yendol

In the May 1993, Society Newsletter, there was a brief obituary announcing the passing of Dr. William G. Yendol,

Professor of Entomology, Pennsylvania State University. The Newsletter article was my notification that Dr. Yendol had passed. The obituary adequately described Dr. Yendol's career milestones but said little about him as a teacher and mentor. His ability in these areas is what made him a unique individual and one who will be remembered by those who knew and admired him.

The first time I met Dr. Yendol was as an incoming graduate student in the Department of Entomology at Penn State. This was in September 1966 one year after Bill joined the department. He already had the reputation of being tough with a Capital T but also of being fair.

I had not yet picked a graduate advisor and Bill said that I should consider biological control. He had the opinion, proven correct, that this area of study would become accepted practice and dependence on chemicals in insect control would assume a role of one supportive to natural suppression factors. In 1966, my interests, however, were in biochemistry and toxicology not in biological control.

Bill was not deterred and continued to express an interest in me as a student and was appointed to my committees for both MS and PhD degrees. He expressed this level of interest to most graduate students in the department. Bill went the extra mile to make students feel they were an important part of the system.

When I began my professional career exclusively devoted to the research and commercial development of microbial insecticides, Bill spent at least one year telling me "I told you so". He became a valuable source of help and guidance for me over the past 23 years.

I saw him for the last time at the Entomological Society of America meetings in Baltimore, Dec. 1992. Several of "his" former students (we were all his regardless of our degree emphasis and faculty advisor) had dinner and reminisced about old times. Bill reminded us that he was glad we all had finally mended our ways regarding microbial control.

I, like most of his students, will miss calling and trouble shooting formulation and application ideas with him. He was never too busy to talk. His life was much too short and we will miss him.

Terry L. Couch, Ph.D. President Becker Microbial Products, Inc. Plantation, FL. Vol. 25, No. 3

MEMBER NEWS

RANDY GAUGLER was the 1992 recipient of the Research Excellence Award at the College of Agriculture and Natural Resources at Rutgers University, in recognition of an "outstanding sustained research program". Gaugler has been on the Rutgers faculty as an insect pathologist since 1982. Current research interests include DNA transformation, mutagenesis, and host-pathogen interactions.

DONALD HALL, professor of entomology at the University of Florida, has been awarded a two year, \$110,000 National Science Foundation grant to train north central Florida middle school teachers in school ground biology. After teachers are instructed in teaching their students ecological concepts and the process of science,Hall will visit each teacher at their school and assist with implementation.

MEMBERS ON THE MOVE

Dr. Richard Daoust, Secretary of SIP, has recently accepted the position as General Manager, Ecogen Europe S.r.l. and has now relocated to Pantalla di Todi, Italy. Richard was formerly Director of Field Development at the headquarters of Ecogen Inc. in Langhorne, PA. In Italy, Ecogen Europe will be a participant in a newly constructed technological park supported by the European Economic Community, the Italian Government and the Regional Government of Umbria.

The focus of work at Ecogen Europe will be screening Bacillus thuringiensis isolates and genetic constructs against Mediterranean insect pests; discovery and strain development of nematodes against insects, particularly soil pests; and coordination of Ecogen's extensive European effort in field testing both experimental and commercially available products and in the registration and marketing of its products there. The address is: Ecogen Europe S.r.l., 3A Parco Technologico Agro-Alimentare, Dell Umbria, Frazione Pantalla 06050, Todi (PG) ITALY. TEL: 39-75-888750, FAX: 39-75-888149

Meantime, Dr. Steve Whitesides will move to Ecogen Inc. in Langhorne (effective late-August) and he and Mr. Dick Hannan have assumed new responsibilities. Please contact them for work in these areas: Dr. Steve WhitesidesMr. Richard HannanManager, Field EvaluationManager, Field EvaluationPheromonesBT BioinsecticidesBiofungicidesCompelNematodes (Western USA
& Asia)Nematodes (Eastern
USA and Europe)

In addition to the data analysis and coordination of field trial materials, Dr. Ben-Huai Lye will be responsible for the field trials in the Northeastern USA. Please contact Dr. Lye for work on potato trials using Foil BFC and other Bt products.

Dr. Ted Poprawski recently joined the Texas A&M Agricultural Research Center at Weslaco, TX. He will be working in the Rio Grande Valley on a cooperative biological control project between Texas A&M, USDA-APHIS (Mission, TX) and USDA-ARS (Weslaco, TX). His research will focus on the development of fungi as microbial control agents of such insect pests as the sweet potato whitefly and Colorado potato beetle. His new address is:

USDA-ARS-Biological Control of Pests Research Unit, 2413 East Highway 83, Weslaco, TX 78596, U.S.A. Phone: 210-969-4806; Fax: 210-969-4888

New Address For Crop Genetics International

Mike Dimock, Mark Beach, Doug Kolodny-Hirsch, & Nikolai van Beek with Crop Genetics International have a new address:

Crop Genetics International 10150 Old Columbia Road Columbia, MD 21046 Phone: 410-381-3800; Fax: 410-381-3840

NEWS ITEMS

National Geographic Magazine Article discusses *Bacillus* thuringiensis

Many members will recall being interviewed by a National Geographic Magazine reporter at the 1989 SIP meeting in College Park, Maryland. After four years wait, this information has been included as a part of an extensive story entitled "Bacteria: teaching old bugs new tricks", in the August, 1993 issue. Photographs of the World Health Organization Onchocerciasis Control Programme using *Bacillus thuringiensis* subsp. *israelensis* were also featured.

Journal of Invertebrate Pathology Seeks Review Articles

As you are probably aware, the new editor of the Journal of Invertebrate Pathology, Dr. Carol Reinisch has asked me to organize a new section of the journal devoted to short "mini" review articles. I would like to ask for your assistance at this time in getting started on identifying titles and authors to contribute to this section. Please, if you have any thoughts on titles or subjects related to invertebrate pathology that you or someone you know would be interested in contributing to JIP please contact me. Any assistance you might provide in this undertaking is greatly appreciated.

John P. Burand Associate Professor of Entomology and Microbiology University of Massachusetts at Amherst Fernald Hall Amherst, MA 01003 (413) 545-2004

POSITIONS AVAILABLE

Postdoctoral Research Associate

A postdoctoral research position is available immediately to study the molecular basis of baculovirus host specificity. Research will focus on identifying and characterizing viral genes that are important for host and tissue specificity in insect larvae. A background in molecular biology is desirable. Send a cover letter with a brief statement of research interests, curriculum vitae, and the names, addresses and telephone numbers of three references to Dr. Suzanne M. Thiem, Department of Entomology, Michigan State University, 243 Natural Science, East Lansing, MI 48824-1115.

Assistant Professor of Insect Pathology

The Department of Entomology, Cornell University, College of Agriculture and Life Sciences is recruiting for a full-time, tenure-track insect pathologist at the Assistant Professor level. The department integrates basic and applied studies of insects and related arthropods through its diverse teaching, research, and extension programs.

Available: July 1, 1994. Duties: Research responsibilities (60%) will entail the development of a vigorous program in insect pathology. Interactions are expected both within the department as well as with other programs in invertebrate pathology and molecular biology, appropriate, on the Cornell campus. if **Teaching** responsibilities (40%) involve teaching a course in insect pathology and a second course in a subject of broad Directing graduate students and advising interest. undergraduates is expected. Qualifications: Ph.D. in entomology, microbiology, parasitology or a related discipline. Preference will be given to candidates with academic training and research experience in insect pathology. Willingness to seek external grant support and to contribute to interdisciplinary projects will be expected. Postdoctoral or similar experience desirable but not essential. Application: Applicants should forward:

1. Letter describing qualifications and interest in position

- 2. Curriculum vitae
- 3. List of publications (include reprints)
- 4. Transcripts (post-secondary education)
- 5. Names and addresses of 3-5 references

Send application to: George C. Eickwort, Chair, Department of Entomology, Comstock Hall, Cornell University, Ithaca, NY 14853-0901 Application Deadline: January 15, 1994

MEETING AND WORKSHOP ANNOUNCEMENTS

International Lincoln Workshop on Insect Pathogens and Their Use in the Management of Soil Dwelling Pests

The 2nd International Lincoln Workshop on Insect Pathogens and their Use in the Management of Soil Dwelling Pests is to be held at Canterbury Agriculture and Science Centre, Lincoln, New Zealand, February 23-25, 1994. The workshop is being organised by the AgResearch (formerly MAF Technology) microbial control team and is timed to commemorate the centenary of the first recorded attempt at microbial control in New Zealand, with the importation of *Beauveria bassiana* for grass grub control. Themes of the workshop will include: Bacteria for control of insect pests; Enumeration of pathogens in the soil; Application of pathogens to the soil; New prospects for *Metarhizium anisopliae*; Development of microbial control products; Modelling/Epizootiology.

An intensive 4 day training course on insect pathology and microbial control will also be held in the week following the workshop.

For further details contact: Dr Trevor Jackson, Microbial Control Group, AgResearch, PO Box 60, Lincoln, New Zealand. Fax:64-3-325 2946, Phone:64-3-325-3011.

NEWSLETTER INFORMATION

At the annual meeting in Asheville, Council approved our request to exchange our editorial responsibilities. Therefore, Betty Davidson is now the Assistant Editor while Mark Goettel becomes the new Editor. Please feel free to contact either of us for information regarding the Newsletter, however, send all submissions directly to Mark in Lethbridge (addresses on next page). Submissions via EMail or on computer disk (WP or ASCII) make our life much easier and save on costs. Remember, we need your input in order to make your Newsletter informative and useful.

Submissions to the following sections are solicited:

Forum: More substantial articles on current issues of concern. Please limit submissions to five pages.

Letters to the Editor: Any issues of concern can be brought up here.

Microbial Control News: Any information on new discoveries, "News Releases," formation of companies etc. pertaining to microbial control.

We also depend on our members to supply us with information for the following sections: Obituaries, Member News (Retirements, Awards, Promotions), Members on the Move (New addresses), Positions Available/Wanted, Meeting and Workshop Announcements, and other News Items.

Deadline for the next Newsletter is January 15, 1994.

WHOM DO I CONTACT FOR INFORMATION?

Inquiries should be directed to the following:

For new membership forms and information

Wendy Gelernter Chair, Membership Committee Mycogen Corp. 5451 Oberlin Drive San Diego, CA 92121 Ph: 619-453-8030 Fax: 619-453-0613

For information on invoices, receipts and address changes

FASEB

Federation of American Societies for Experimental Biology 9650 Rockville Pike Bethesda, MD 20814 ATTN: Debbie Stoutamire Ph: 301-530-7120 Fax: 301-530-7049

For information on the Society in general

Dr. Richard Daoust, Secretary Ecogen Europe S.r.l. 3A Parco Tecnologico Agro-Alimentare Dell Umbria Frazione Pantalla 06050 Todi (PG) ITALY Ph: 75-888-750 Fax: 75-888-149

For information on the VIth International Colloquium on Invertebrate Pathology and Microbial Control

Dr. Max Bergoin Dept. of Microbiology Universite de Montpellier II Place E Batailloin 34095 Montpellier Ced 5 France Ph: 67 14 30 30 Fax: 67 54 30 79

For information on the Division on Microsporidia

Leah Bauer, Secretary Forest Service USDA 1407 South Harrison Road East Lansing, MI 48823 Ph: 517-355-7740 Fax: 517-355-5120 For information on the Division on Microbial Control, Directory of Industries, Slide Atlas

Dr. John Vandenberg, Secretary Plant, Soil and Nutrition Lab USDA - ARS Tower Road Ithaca, NY 14853-0331 Ph: 607-255-2456 Fax: 607-255-2459 Internet: JDV3@CORNELL.EDU

For information about membership endowment

Dr. George Soares Chair, Endowment Committee Mycogen Corporation 5451 Oberlin Drive San Diego, CA 92121 Ph: 619-453-8030 Fax: 619-453-0613

For submissions to the Newsletter contact

Dr. Mark Goettel Newsletter Editor Agriculture Canada Research Station P.O. Box 3000 Lethbridge, AB T1J 4B1 Ph: 403-327-4561 Fax: 403-382-3156 Internet: GOETTEL@ABRSLE.AGR.CA Courier address: Highway 3 East, Lethbridge

OR

Dr. Elizabeth W. Davidson Assistant Newsletter Editor Department of Zoology Arizona State University Tempe, AZ 85287-1501 Ph: 602-965-7560 Fax: 602-965-2519 Bitnet: ATEWD@ASUACAD

Submissions via EMail or on computer disk (WP or ASCII) make our life much easier. Deadline for the next Newsletter is January 15, 1994.



1. H. Whisler; 2. D. Dean and M. Adang; 3. C. Ignoffo and J. Harper; 4. Mixer; 5. D. Onstad and M. Goettel; 6. C. Lucarotti, C. Payne, J. Becnel, J. Harper, C. Apperson, M. Barbercheck and S. Hirsh; 7. Start of 5-K race.

PHOTOS FROM ASHEVILLE



8. C. Johnson and J. Maruniak; 9, 10. Enjoying barbecue at Chimney Rock; 11, 12. Mixer at Deerpark Restaurant on the Biltmore Estate; 13. A. Cali, B. Granados, L. Lepore, D. Lynn, and M. Bergoin.

PHOTOS FROM ASHEVILLE

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14. Rescue at Chimney Rock; 15. Flavio Moscardi and Wendy Gelernter; 16. Dudley Pinnock; 17. Betty Davidson; 18. George Soares; 19. Betty Davidson, Kay Sweeney, Don Roberts, Ann Cali and Tony Sweeney; 20. Jeff Lord and Carol-Ann Johnson (Learning bad habits from Wayne Brooks?); 21. Desi Himenez and Andy Rath; 22. Tariq Butts and Don Roberts.

PHOTOS FROM ASHEVILLE

You Can Assist in the Development of a Database of the World's Insect Pathogens

Background

In 1992, I (David Onstad) started development of a computerized ecological database of the world's insect pathogens at the University of Illinois. Simple ecological (natural history) information is combined with taxonomic information about infectious pathogens and their insect hosts to make the database useful for scientists and government regulators interested in biological pest control. The database can help scientists find interactions that they were not aware of or assess the risk of introduced pathogens harming beneficial and endangered insect species. Can we predict the host-specificity or host range of a pathogen? Can we discover if a scientist has already found no evidence of a pathogen infecting a particular non-target insect? These are just a few of the questions that can be asked of a database such as the one being developed.

The database currently contains information on almost 2,000 associations. I have recently received a small grant from the National Biological Control Institute (NBCI) of USDA-APHIS to improve and expand the database. At the 1993 meeting of the SIP, the Executive Council agreed to formally support the database in non-financial ways.

Opinion

I have two long term goals that may or may not be shared by officials of SIP and NBCI: (1) the database should be managed by an agency that can make the database accessible, probably electronically, to pathologists around the world, and (2), the scientists that use the database, such as the members of the SIP, should be responsible for maintaining the scientific integrity of the database. The NBCI and the USDA clearly have an interest and potential capability for achieving the first goal. Over the next two years, I hope to generate a long term commitment from the SIP in the form of a committee or process.

Description of Database

Information concerning 16 items will be entered into a database. Information will be gathered from the literature, but the most important source will be active insect pathologists. Pathologists often have 5-10 years of unpublished data on several species in their filing cabinets. Furthermore, knowledge about the absence of pathogens in a species or population often is never published, but this information is emphasized in the database. Isolates, races and strains of pathogens are only accounted for if they are host-specific; the database simply adds another set of information for each association between species but not multiple sets for different associations between isolates and the same insect species.

Information was chosen that was easy to obtain. Categories 8, 11, and 12 (below) pertain to host life stages that can become infected, not those that remain infected as the insect matures. An intermediate host is an extra host required in the pathogen life cycle. The number of host generations per year will be described as less than one (cicadas requiring many years), one per year, or more than one. This variable tells us something about the availability of the host over time for infection by the pathogen. The observation should be described as a lab or field observation so that regulators and others can assign risk to the prediction of infection in nature. The categories may not cover all possible situations or concerns, but they seemed to cover the basics for each association between a pathogen species and an insect species.

Request

If you believe that you have reliable published or unpublished information about pathogen and host interactions that I may not be aware of, you can fill out the questionnaire below (make extra copies if necessary) and send it to me. **Return to: David Onstad, Illinois Natural History Survey, 607 East Peabody Dr., Champaign, Illinois 61820, USA.** Secondly, I hope that senior pathologists with decades of experience will also be willing to verify information in the database and to help in the process of revision (see Opinion section). Because <u>Bacillus</u> <u>thuringiensis</u> is not used as an infectious disease, the database will not include information about it over the near future.

QUESTIONNAIRE

1. Insect species	
2. Insect family 3. 1	nsect order
4. Pathogen group. Circle one: virus nematod	<u>e fungus protozoa microspora bacteria</u>
5. Pathogen species Record None if you have never seen infection by	this phylum in this insect species.
6. Pathogen family 7. 1	Pathogen order
8. Susceptible life stage(s) of insect. Circle:	<u>egg larva/nymph pupa adult</u>
9. Host tissue(s) infected	<u></u>
10. Intermediate host (Name of species, None	Unknown)
11. Habitat of susceptible stage Use broad categories such as woods, grassland/r	neadow, crop, water, or soil.
12. Species or resource on which susceptib	le host stage feeds
13. Number of host generations/year. Circle	one: <u>1 less than 1 more than 1</u>
14. Observed in lab only or in field. Circle or	ne: <u>lab only field</u>
15. Association observed in which countrie	S
16. Name of observer, if unpublished, or on	e literature reference

FRANCE

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Université de Montpellier H, Place Eugène

Laboratoire de Pathologie Comparée (Pr. M. **Bergoin**

Bataillon

VIth International Colloquium 0n Invertebrate

Pathology

and

Microbial

Control

Registration fee

The fee will be about 200 US \$ for regular SIP members, 250 US \$ for non SIP members and 125 US \$ for students. There will be a reduced rate for accompanying persons.

Time table

Full details including registration form, abstract form, hotel reservation will be included in the Second Circular to be sent in January 1994. The deadline for abstracts and early registration will be April 30, 1994.

Scientific Committee

C. Vago Honorary Chairman

M. Bergoin (Univ. of Montpellier II, France) N. Boemare (INRA, Montpellier, France) J. Fargues (INRA, Montpellier, France) B. Federici (Univ. of California, Riverside, U.S.A.) R. Frutos (CIRAD, Montpellier, France) R. Granados (Boyce Thompson Inst. Ithaca, U.S.A.) J. Huber (Biol. Bundesanstalt, Darmstad, Germany) A. Klier* (Institut Pasteur, Paris, France) L. Lacey (USDA, Montpellier, France) M. Lecadet (Institut Pasteur, Paris, France) B. Papierok (Institut Pasteur, Paris, France) C. Payne (Hort. Res. Internat., Wellesbourne, U.K) L. Thaler (Univ. of Montpellier II, France)

*Chairman 2nd Internat, Conf. on Bt

For further inquiries, please contact :

Pr. M. Bergoin, Laboratoire de Pathologie Comparée Université Montpellier II, Pl. E. Bataillon, CC 101 34095 Montpellier Cedex 5 Fax : (33) 67 14 30 31

VIth International Colloquium on **Invertebrate Pathology and Microbial** Control and

Second International Conference on **Bacillus** thuringiensis

in conjunction with the 27th Annual Meeting of the Society for **Invertebrate** Pathology

Montpellier, France 28 August-2 September, 1994



1ST ANNOUNCEMENT

Scientific program

The five days program will include both oral and poster presentations on various aspects of invertebrate pathology and microbial control. Several of the sessions each day will be devoted to various topics concerning *Bacillus thuringiensis*. In addition to contributed papers, morning plenary sessions and symposia will include presentations on:

> -Molecular Genetics of Insect Pathogens
> -Endosymbionts
> -Insect Resistance to Pathogens & Resistance Management
> -Mode of Entry of Pathogens
> -Mass Production of Pathogens
> -Cellular & Molecular Biology of Microsporidia in Cell Culture
> -Development of Entomopathogenic Fungi as Biocontrol Agents
> -Entomopathogenic Nematodes, Ecology, Genetics & Biological Control
> -Recombinant Insect Viruses

Location

The meeting will take place in the new spacious conference center *Le Corum*, located in the historical heart of the city. In addition to the old world charm of Montpellier, and the attractions that it has to offer, it is within easy driving distance of the medieval cities of Carcassonne, Aigues-Mortes, the Papal palace of Avignon and the Roman monuments of Nimes and Arles, the Cathar fortresses as well as the natural scenic beauty of Southern France such as La Camargue, the Cevennes mountains and a number of Mediterranean beaches.

Transportation to Montpellier

The city is served by the Montpellier Mediterranee International Airport with several daily flights from Paris and London, and from several other major cities in France. From Paris the high speed train, TGV, reaches Montpellier in just 4 1/2 hours. One can also reach Montpellier on the rapid train from Geneva and Barcelona. By autoroute the driving time to Montpellier from Paris is approximately 9 hours.

Social Events

The social program will include the mixer on Sunday evening, a half day excursion on Wednesday afternoon to Aigues-Mortes, Nimes and the 2000 years old Roman Aqueduct, the Pont du Gard, where the 5 km race will take place and the banquet on Thursday night. Information on additional tours and excursions for accompanying persons will be available at the registration desk.

Accommodations and Restaurants

A large variety of hotels ranging from modest to luxurious are available within walking distance of *Le Corum*. Rooms will also be available at low rate in student residences. There are many good camping grounds in seaside resort area, 10 to 20 km from downtown Montpellier.

Exhibitions

Ample space located adjacent to the poster and coffee breaks area will be available for commercial exhibitions. Please mark off the appropriate box for details.

Provisional Application Form [am interested in attending the meeting and wish to receive the Second Circular (please use block letters) Name :
Institute or Firm :
Address:
Postal code : City : Country :
SIP Member: Yes No
I am interested in presenting a paper □ a poster □ □ I am interested in Exhibition □ I am interested in the program for accompanying persons

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