

NEWSLETTER

society for invertebrate pathology

VOLUME 34, NUMBER 1

February, 2001



34rd Annual Meeting of the Society for Invertebrate Pathology, Noordwijkerhout, The Netherlands. August 25-30, 2001

The year 2001 marks the 100th anniversary of the discovery of *Bacillus thuringiensis* by Ishiwata and the 25th anniversary of the discovery of *B. thuringiensis* var. *israelensis* by Margalit. The latter being discovered in Israel, the Israeli Organizing Committee, lead by Meir Broza, takes great pride in organizing the 34th Annual Meeting of the Society for Invertebrate Pathology (SIP2001). Due to the uncertain political situation in Israel today the Israeli Organizing Committee sought an alternative venue for Ma'le Hachamisha and accepted the offer of the Dutch colleagues to join the Organizing Committee and have the meeting in The Netherlands. This will, therefore, be the first bi-nationally organized meeting in the history of the SIP. Israel and The Netherlands share a long history of friendship and the change in venue to the Golden Tulip Conference Hotel Leeuwenhorst in Noordwijkerhout was not difficult. The organizers are pleased that this change of venue and dates has the full support of the SIP executives and the SIP council. We extend a cordial invitation to all to attend SIP2001.

The Israeli Organizing Committee apologizes that its sincere wish to welcome all SIP colleagues and true friends in Israel could not be fulfilled this time. The Committee feels that, when the situation in the region will return to peace, a better opportunity to host the SIP meeting in Israel will be found. SIP pilgrimage to a peaceful Jerusalem may provide a wonderful opportunity to combine scientific and spiritual values.

TABLE OF CONTENTS

34th Annual Meeting Noordwijkerhout, The Netherlands	1
Announcements for Noordwijkerhout Meeting	4
From the President	6
News Items.....	7
Microbial Control News	7
Members on the Move.....	10
Editorial	11
Publications.....	11
Obituaries	12
Positions Available.....	17
Future Meetings & Workshops	18
Past Meetings	19
Book Reviews	20
Letters to the Editor.....	21
On the Web	22
Editor's Notes	22
More SIP Photos	23

Deadline for the next Newsletter is May 15, 2001.

SIP Office

Please send all correspondence, membership applications and changes of address to our Executive Secretary, Margaret (Peg) Rotstein at:

Society for Invertebrate Pathology
7413 Six Forks Road, #114
Raleigh, NC 27615
USA

Toll Free Tel: 1-888-486-1505
Toll Free Fax: 1-888-684-4682
Internet: sip@sipweb.org
Homepage: "http://www.sipweb.org"
Outside USA Tel and Fax: (919)-841-4133

Note: Toll Free numbers for Canada & USA only

The core of the Organizing Committee for the 1986 meeting in Veldhoven (Just Vlak, Dick Peters and Rob Samson) has been revived and joins the Israeli Organizing Committee in shaping an attractive and friendly meeting. The Dutch team will be responsible for the local arrangements and registration and the Israeli team for the scientific program. The two teams will cooperate in planning the social program to make this meeting a memorable one.

Israeli Organizing Committee

Meir Broza, Chair
Baruch Sneh, Secretary
Yechiel Shai, Program Chair
Nor Chejanovsky, Treasurer
Danny Segal, Member
Itamar Glazer, Member
Arieh Zaritzki, Member
Amos Navon, Member

Dutch Organizing Committee

Just Vlak, Chair
Rob Samson, Secretary
Dick Peter, Treasurer
Rob van Haarlem, Congress Office SIP2001,
Wageningen

Location: Noordwijkerhout is located in the heart of the 'lowlands' in the western part of the Netherlands. It is close to the sea (25 min walk) and within reasonable distance from Amsterdam (hourly bus service, 25 km), Leiden, Delft and The Hague. Golden Tulip Hotel Leeuwenhorst is a former monastery and has been converted into a modern

SIP NEWSLETTER

Published by
the Society for Invertebrate Pathology
(SIP Homepage: "http://www.sipweb.org")

Dr. Leellen (Lee) Solter
Newsletter Editor
Illinois Natural History Survey
182 Natural Resources Building
607 E. Peabody Drive
Champaign, IL 61820 USA
Tel: 217-244-5047 (or 5115); Fax: 217-333-6784
Internet: l-solter@uiuc.edu

Dr. Mark Goettel
Assistant Newsletter Editor
Lethbridge Research Centre
Agriculture & Agri-Food Canada
P.O. Box 3000, 5403 1st Avenue South
Lethbridge, AB, CANADA
Tel: 403-317-2264; Fax: 403-382-3156
Internet: goettel@em.agr.ca

The SIP Newsletter is published 3 times per year and is available on our homepage.

Submissions to the following sections are solicited:

Forum: More substantial articles on current issues of concern, limited to approximately five pages.
Letters to the Editor: Issues of concern can be brought to light here.
Microbial Control News: 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**.

Send all submissions directly to the Editor. Submissions via e-mail or on computer disk (MSWORD, if possible) streamlines publication and saves on costs. Please include a hard copy with any text sent via computer disk.

Deadline for the next Newsletter is May 15, 2001.

Disclaimer: The information contained herein, including any expression of opinion, and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon, does so entirely at his/her risk.

conference facility with a friendly atmosphere. Schiphol airport, also known as Amsterdam Airport, is the main port of air entry into the Netherlands and has connections to all major airports world-wide. The airport is 30 minutes by car from the conference hotel and free transfers will be provided for those arriving on Saturday and leaving Thursday. The taxi rate is 80 NLG one way. Those travelling by train should choose Schiphol as their final destination.

Venue: Golden Tulip Conference Hotel Leeuwenhorst is fully equipped with auditoriums, numerous conference rooms, restaurants, countless sport and recreational indoor facilities (swimming pool, sauna), etc. The rooms (singles and doubles) are comfortable and equipped with telephone, TV and e-mail connections. The hotel is part of Golden Tulip chain (4-star), which also includes our former venue for the 1986 meeting in Veldhoven. All activities except the outing will be held in the conference center. Address: Langelaan 1, 2211 XT Noordwijkerhout, The Netherlands
Phone: +31-252-378888, Fax: +31-252-378890,
congress@gtleeuwenhorst.goldentulip.nl,
www.goldentuliphotels.nl/gtleeuwenhorst.

Weather in The Netherlands. The weather in the Netherlands in August is 19° C on average and may vary during the day. It is advisable to take a sweater or jacket for the cooler evenings. In August it is usually sunny, but an occasional rain shower is possible.

Meeting format. The program format will differ somewhat from the usual SIP format of the last few years. The meeting will start on Saturday evening with a mixer and continue on Sunday, Monday, Tuesday and Wednesday with a full program. The meeting concludes on Thursday morning after breakfast. This format allows the delegates to profit maximally from the less expensive airfares that usually include a Saturday night stay, and allow them to return before the end of the week.

Scientific Program. Plenary sessions, symposia and contributed paper sessions will be held throughout the meeting. Poster sessions are tentatively scheduled for Monday and Tuesday. Divisional meetings are scheduled for Monday and Tuesday evening. There will be student paper and poster

competitions with generous awards provided by the Society. Student competitors will be limited to one presentation each (either a poster or an oral presentation). The Society's business meeting is planned for Wednesday morning.

Symposia.

Sunday -Plenary lecture: Host-pathogen interactions
-Bacterial systematics and ecology
-Apoptosis and host range of insect viruses
-Fungi (to be determined)

Monday -Advances in molecular biology of entomopathogenic nematodes
-Insect immunity
-Microbial control
-Evolution and function of entomopathogenic fungi
-Transgenic microorganisms
-*Bti*: 25 years to its discovery

Tuesday -*Vibrio* infection of aquatic invertebrates
-Microbial control of veterinary pests
-Are microsporidia derived from fungi?
-Virus biology
-Diverse insecticidal proteins produced by bacteria
-Ecological adaptation of EPN

Wednesday -Bacteria – mode of action
-RNA viruses
-Fungi (to be determined)
-New products and technologies in microbial and biological control
-Pathogens of nematodes

Deadline for abstract submissions. *The deadline for receipt of abstracts for symposia, contributed papers, posters and other program information is May 15, 2001.* This deadline will allow the Program Committee to prepare and distribute the program and abstracts to all SIP members before the meeting via the SIP web site (www.sipweb.org). Abstracts received after the deadline will not be printed. Late submissions will be scheduled as posters on a space-available basis. We reserve the right to request that some contributed papers be presented as posters. These presenters will be informed in advance of the publication of the program and abstract book. A printed Program and Abstract book will be available

only to those registered for the meeting or to those requesting copies through the SIP Office.

The Program Committee solicits your contributions of abstracts for meeting presentations. Instructions are located in the registration package included in this Newsletter. Oral presentations will be limited to 12 minutes with an additional 3 minutes for answering questions. Because of concurrent sessions, moderators will be instructed to keep strictly to the scheduled times. Projection equipment will consist of Kodak carousel slide projectors (2" x 2") and overhead transparency projectors. Digital projectors may be available, but be prepared to present using slides and overheads as backups. Poster boards will be 1.2 m high and 1.5 m wide.

Deadline for registration: *May 15 is also the absolute deadline for early paid registration.* The registration fee includes access to the scientific and social program, Program and Abstract book, mixer, barbecue, conference dinner, refreshments during the conference, and transportation during the conference. The accommodation fee includes accommodation (5 nights), all meals (breakfast, lunch and dinner), and access to the hotel lounges and sports and recreational facilities (large indoor swimming pool!). Single room (1,200 Dutch guilders) and double room (950 Dutch guilders per person) occupancy is offered.

An outing (to be determined) will be organized for Tuesday afternoon (at a surcharge) and Tuesday evening will be a special time to relax (included in the registration fee). Those requiring accommodation prior to or after the meeting should indicate this separately to the local organizers. Student registrants must include a written statement from their educational institution or from his/her supervisor known to the SIP at registration. Registrants will be notified about their registration and payment upon receipt. On-site registration is possible, but accommodation cannot be guaranteed.

Cancellation policy. Cancellations are only accepted before August 1, 2001. A handling charge of 150 Dutch guilders is withheld. After August 1, returns cannot be guaranteed due to commitments with the conference center.

Social program. Due to the change of venue the social program is still being developed, but there is an array of cultural and recreational possibilities in the vicinity of the venue. The Dutch and Israeli Organizing Committees will do their best to arrange

an attractive program. The banquet will be held in one of auditoriums, the Rotunda, of the conference hotel. The student, Founder's Lecture and 5K awards will be presented at the banquet.

Invitations. Those requiring invitations for obtaining visas should write to the Executive Secretary of the meeting, Mr. Rob van Haarlem (see page 5 of Registration Form).

Key dates to remember:

Deadline for submission of abstracts to ISRAEL:

May 15, 2001

Deadline for early registration in THE

NETHERLANDS:

May 15, 2001

Deadline for cancellation (Fee 150 NLG):

August 1, 2001

Meir Broza, Chair & Just Vlak, Local Chair



Golden Tulip Conference Hotel Leeuwenhorst

**ANNOUNCEMENTS FOR
NOORDWIJKERHOUT MEETINGS**

Mauro Martignoni Student Paper Award

As reported in the November Newsletter, Mauro Martignoni bequeathed a sum of \$5,000 for support of student travel to the SIP Annual Meetings for presentation of research results. Through the generosity of many, this amount has been significantly increased and set aside as an endowment to support an annual award. We are pleased to announce at this time a call for applicants to compete for the first annual Mauro Martignoni Student Paper Award.

An award of US \$500 will be presented to support travel to the meeting in Noordwijkerhout, The Netherlands (August 25–29, 2001). The recipient must make an oral presentation and submit an

accompanying abstract of which she/he is first or second author. The student is not required to be a member of SIP, and the subject matter may relate to any area of invertebrate pathology. An award presentation will be made at the meeting; however, arrangements may be made for receiving the money in advance. Student applicants must provide the following information by **March 31, 2001**.

- 1) Name, address, institution and degree program
- 2) Presentation title, authors and abstract
- 3) A letter from the advisor providing a recommendation and verification of student status
- 4) Transcripts of undergraduate and graduate course work
- 5) A list of publications and previous presentations at scientific meetings

Send application materials by fax, airmail, or e-mail (preferred) to:

Stephen Wraight, Student Awards Chair
 USDA/ARS/BCPRU, US Plant, Soil & Nutr. Lab
 Tower Road
 Ithaca, NY 14853
 e-mail: spw@cornell.edu

Microbial Control Division Student Travel Award

The Microbial Control Division announces a \$500 (\$US) travel award for students with financial difficulty to attend the SIP meeting in the Netherlands. Students from any country can apply by completing a form published in the SIP Newsletter or by E-mail. The award recipients are not required to be members of the Microbial Control Division.

The student award recipient is expected to make a presentation (oral or poster) and be the first or second author. The subject matter of the presentations should pertain to the Division even if the student is not a Division member.

Applications should be sent to the chair of the selection committee and be accompanied by:

1. A preliminary summary of the presentation (up to one page),
2. A recommendation letter from the supervisor

3. A copy of the academic transcripts (confidential)
4. Budget and information about other financial sources available (if any).

The selected student will receive official communication from the Chair of the Microbial Control Division and should confirm their participation as soon as possible. The award is normally delivered at the meeting, but when necessary for travel, can be sent earlier.

Application Form for MCD Student Travel Award

- 1) Identification

Name:

Address:

Institution:

Degree: ___ B.Sc. ___ M.Sc. ___ PhD

___ M.Sc./Ph.D. student

Year of joining SIP: ___

- 2) Previous communications at scientific meetings
- 3) Previous publications
- 4) Total cost of your trip and other complementary source of funding (if any) to attend the SIP meeting

Deadline for application: April 1; Decision: May 1

Please send applications to Stefan Jaronski,
 Microbial Control Division, Member-at-Large.
 USDA, ARS, NPARRL, 1500 N. Central Ave.,
 Sidney, MT 59270-4202
 (sjaronski@sidney.ars.usda.gov)

Microbial Control Division 2001 Symposium

The Microbial Control Division is soliciting ideas and organizers for the MCD symposium to be held at this year's SIP meeting in the Netherlands. The topic should pertain to microbial control, but the scope of candidate symposia is not limited to strictly applied subjects. Some limited financial assistance to offset registration and travel costs of invited speakers, may be available. For submission of candidate symposia contact Lerry Lacey (llacey@yarl.ars.usda.gov) or Wendy Gelernter (gelernt@pace_ptri.com). Please send the name of symposium organizer(s), symposium title, a brief paragraph describing the overall content of the symposium, a list of potential topics and speakers.

Lerry Lacey, Chair, Microbial Control Division

Microbial Control Division Workshop

The Microbial Control Division will once again schedule a workshop, "New Products and Technologies in Microbial and Biological Control" at the Netherlands SIP meetings this August. Each interested researcher or company will have between 5 and 10 minutes (depending on the final number of presenters) to brief the audience on their topic. This year we hope to include presentations from companies that produce microbial pesticides, as well as other biocontrol products that are compatible with microbial pesticides.

If you would like to participate, please contact workshop organizers Wendy Gelernter (gelernt@pace-ptri.com) or Amos Navon (navona@netvision.net.il) by July 1, 2001. Membership in the Division or SIP is NOT required for presenters, so if you are aware of any projects or products that you think should be included in the workshop, please don't hesitate to extend your own invitations to non-members.

FROM THE PRESIDENT

Meeting Venue. In my comments in the November 2000 Newsletter, I indicated that a decision had been made by Council to seek an alternate venue for the 2001 SIP Meetings due to the unfortunate situation in Israel. As you have seen in this issue, the venue finally selected following recommendation by the new Meetings Committee (Mark Goettel (Chair), Mike Adang, Brian Federici) and vote by the Governing Council was for the Netherlands.

I want to let you know that two excellent venues were presented, one in the United Kingdom at Warwick University that was developed largely by our Secretary, Doreen Winstanley, the other in the Netherlands, developed by Just Vlak and colleagues. Both obtained complete details on housing, meeting facilities, travel details, and other critical information in sufficient detail to know that either would meet our needs very well, and both did so in less than two months. This was possible in large part because they knew that the program development was to continue to be handled by our Israeli Committee and would not fall on the local arrangements group.

It is my hope that we will be able to take advantage of the work done in planning for the UK venue for a European meeting in the not too distant future, and I

have encouraged Doreen and her group to make a bid to the Meetings Committee to consider this. I want to thank both Doreen and Just, and all members who supported them in their Herculean efforts to come to the aid of the Society at this critical time.

The Netherlands meeting promises to be excellent with the scientific program being nearly all in place thanks to Meir Broza and his colleagues and the work they have been doing over the past three years. The local arrangements sound great also, with only a few small details still to be worked out. The Local Committee of Just Vlak, Rob Samson and Dick Peters is the same group who arranged and hosted us for our 1986 meeting in Veldhoven. Their experience should help to insure that all details are handled well for us.

Newsletter. With this issue we welcome Newsletter Editor, Leellen Solter, who takes over from Mark Goettel. Lee has been serving as Assistant Editor, so the transition should be smooth as this Newsletter will demonstrate. The Newsletter is one of the principle benefits that all members receive, and I encourage you to use it actively. Please send Lee any items that might be of interest to our members. This will make her job easier and will make the Newsletter more valuable to all of us.

On behalf all members of the Society, I want to thank Mark for the wonderful job he has done in his 7-year tenure as editor (and 2+ as assistant editor). I have always been impressed with the vigor and energy that he has put into the Newsletter. Its arrival has always been eagerly awaited and never disappointing. Many extra inserts and new features have been included in the Newsletter under Mark's editorship. He has gone many an extra mile to ensure that important topics have been obtained to keep us up to date on key issues. Many of you have received "encouraging" phone calls or e-mails from Mark to get material in to him for his deadlines! This is one of those jobs that only pays in the personal satisfaction of knowing that the product is appreciated, useful, and well done, and that the Society is made stronger through the effort. It also pays by the positive comments of satisfied members. Please join me in letting Mark know that his good work has been appreciated. We are fortunate that Mark will continue as Assistant Editor to help in the transition.

Committees. Sadly, the death of Tad Poprawski, chair of the Endowment and Student Awards

Committee, has necessitated changes in that Committee. Steve Wraight has agreed to move up as chair of the committee, and members will be Andreas Linde, Nguya Maniania, and Travis Glare. They will have the responsibilities of selecting recipients of membership fees paid from the Society's general endowment income and awarded to those who have currency or financial difficulties, and who could not otherwise continue their membership. They are also responsible for organizing and leading the student paper and poster judging at our annual meetings. This year, they will also take on the responsibility of soliciting applications and determining the winner of the first Mauro E. Martignoni Student Paper Travel Award.

The membership of all standing committees is listed on the Society homepage. Use the "OFFICERS" button to see a list of both officers and committees.

Martignoni Endowment and Travel Award

I am pleased to announce that the Mauro E. Martignoni Student Paper Award endowment is in place. With the \$5,000 in principle from Mauro and his family through his will, donations from the divisions, and personal member contributions, we now have approximately \$7,600 in the endowment. Earnings are sufficient to initiate the first award this year. I want to thank you for your many generous contributions that have ensured that this award can be given on an annual basis. If the principal continues to grow over time, we will be able to make not only the annual \$500 student paper award specified by Mauro in his will, but also an additional award or awards as the interest earned on the endowment allows. The award will be given based on criteria published elsewhere in this issue, and I encourage all students to consider competing for it.

Home Page. If you have not used the home page in the last month, check it out! What a change! My thanks to Peg Rotstein for redesigning the page to make it more attractive, faster, and more efficient to use. Give it a try. As Peg says, it is a work in progress, and if you find errors or problems, she will welcome hearing from you about them. Nice work, Peg!

NEWS ITEMS

Call for applicants to receive endowed Society membership

The Society's endowment annually supports the membership of 10–12 individuals with limited financial resources or limited access to hard currency. Endowed members may be either highly regarded invertebrate pathology professionals or serious students. In some cases, endowments may be provided for up to five years. This announcement represents a call to all of our colleagues worldwide, especially those with connections in developing nations, to submit the names of worthy individuals to receive this recognition and support.

The Endowment and student awards committee has suffered a great loss in the recent passing of its internationalist chairperson of the past several years, Tadeuz Poprawski. He will be greatly missed, and we will need the help of many to maintain the quality and diversity that, through his efforts, our lists of endowed members have displayed in the past.

Stephen Wraight, Endowment and Student Awards Committee Chair

USDA-ARS Plant Protection Research Unit
US Plant, Soil and Nutrition Laboratory

Tower Road

Ithaca, NY 14853

Tel: 607-255-2458

Fax: 607-255-1132

E-mail: spw4@cornell.edu

MICROBIAL CONTROL NEWS

Auxein and Mycotech Merge to Form Emerald Bioagriculture

(Via Stephan Jaronski, USDA/ARS/NPARL, Sidney, MT)

LANSING, Mich., and BUTTE, Mont., January 8 - Auxein Corporation and Mycotech Corporation today jointly announced their merger into Emerald BioAgriculture Corporation. Emerald Bio develops, manufactures and markets natural, environmentally responsible crop protection and yield and quality

enhancement products. The company is headquartered in Lansing, Mich., with manufacturing operations in Butte, Mont.

Emerald Bio has eight products that are registered by the Environmental Protection Agency. They include Auxigro® and NuTRx(tm), two biochemical-based products that enhance crop yields and quality and fight crop diseases; Mycotrol®, BotaniGard®, Nemasys® and Nemasys H®, which employ naturally occurring fungi and nematodes to control insects; and Valero® and Cinnamite®, which use a naturally occurring biochemical to control mites and fungi.

Emerald Bio's product line is based on two core technologies. The first is the use of gamma aminobutyric acid (GABA), a naturally occurring amino acid, to increase crop yields, improve quality and combat diseases. The second is the selection, formulation and manufacture of fungal-based, biological pesticides. The first product developed using Emerald Bio's fungal-based technology is a bioinsecticide for the control of soft-bodied insects such as whiteflies, aphids and thrips. Emerald Bio also has expertise in the biological control of other insects and mites. All of the company's product development efforts are directed at creating natural, environmentally responsible biological and biochemical alternatives to chemical-based agricultural practices.

John L. McIntyre, Ph.D., president and chief executive officer of Emerald Bio said, "Consumer demand for more natural foods is fueling the growth in bioagriculture. This merger puts Emerald Bio in the forefront of this trend. We expect to be a major player in the continued consolidation of this expanding market."

McIntyre continued, "We expect considerable synergy from the merger of Auxein and Mycotech. We now have a broad product line to offer distributors and we can operate more efficiently, since both company's product lines target many of the same markets - grapes and other fruits, nuts and high-value vegetables."

Emerald BioAgriculture Corporation is a leader in the emerging field of bioagriculture - the use of biological and biochemical agents to improve crop yields, enhance quality, combat disease and fight pests. Emerald Bio is devoted to the development of natural, environmentally responsible alternatives to chemical-based agricultural practices.

Contact: John L. McIntyre, Ph.D.
President and CEO
Emerald BioAgriculture Corporation
(517) 882-7370, Ext. 224

Douglas R. Johnson, Ph.D.
GreenTree Communications
(800) 428-8796 or (207) 367-5901
greentree@acadia.net

A Promising Debut for *Bt* Hybrid Rice

Two technological advances have been combined to greatly improve rice, productivity*hybrid rice and a fusion *Bt* endotoxin gene. Hybrid rice, developed and commercialized in China in 1976, became popular because it has a 20% yield advantage over inbred varieties. *Bt* (*Bacillus thuringiensis*) has been used for more than 50 years as a biological insecticide. Cloning the insecticidal delta-endotoxin *Bt* gene into plants further enhanced its effectiveness.

Ten years ago Monsanto showed that the fusion of two *Bt* genes could further improve plant protection against insects (1). In 1999, we developed a promising tool for the use of *Bt* technology to improve hybrid rice (2). Subsequently, we developed commercial hybrid rice with a fusion hybrid *Bt* gene. This hybrid rice showed a 28% yield advantage in field conditions (3). The advancement of this product will considerably help to reduce pesticide use.

Rice is the major staple food for about 2.5 billion people, almost all of whom live in developing countries. To maintain an adequate supply of rice for the tremendous annual increase in population between now and 2020 and beyond is a formidable challenge to the scientific community. This increase must be achieved in the face of declining arable land and water supplies, and in a manner that protects the environment (soil, water, and biotic resource base) from which all food must come.

The combination of genetic engineering with improved plant breeding offers a solution to the demand for food security. The total global area under cultivation with transgenic crops as of 1999 was 8.9 million hectares. The commercialization of other *Bt* crops such as canola, cotton, and maize is in progress in several countries including Asian countries such as India and China. Rice hybrids are

now cultivated on about 55% of the rice-growing areas in China and contribute 66% of China's total rice production. During the past four years, India, Vietnam, Bangladesh, and the Philippines have been using this technology successfully.

Stem borer is a serious problem in rice, causing estimated losses of 5-30% of the total yield. Recovery of 5% of this yield loss could provide food for one year for the approximately 140 million people of Bangladesh. Yellow stem borer (*Scirpophaga incertulas*) and striped stem borer (*Chilo suppressalis*) are the major stem borer pests and are widely distributed in Asia. Stem borer larvae start their attack by boring through the inner portion of the leaf sheath. The subsequent boring through the stem by caterpillars causes considerable damage, resulting in "deadheart" symptoms, and the affected tillers do not bear panicles. Panicles often appear with empty grains, a condition called "whitehead."

Tissue-specific promoters, particularly the green-tissue-specific promoter (PEPcP) or pith tissue-specific promoter-driven *Bt* genes, were introduced in rice and showed preferential tissue-specific expression and significantly reduced expression in grain (4). The question arises whether we can express this *Bt* toxin in tissues other than seeds.

It took 10 years to develop the first transgenic plant with the *Bt* gene. However, the expression of the *Bt* endotoxin protein was too low (<0.001% of leaf soluble protein) to provide adequate protection against insect pests. The situation has now changed dramatically as truncated and/or synthetic genes have been developed by removal of potential mRNA-processing (improper splicing sites) and polyadenylation signals during resynthesis of the *Bt* gene (5).

What are the prospects for current *Bt* rice and acceptance by farmers? A restorer line, Minghui 63, was transformed with a fusion of two genes, cryIA(b) and cryIA(c), driven by the actin1 promoter. A selected homozygous MH63 *Bt* line was hybridized with CMS line Zhenshan 97A to produce a hybrid Shanyou 63 *Bt* rice. Shanyou 63 has been the most widely used popular hybrid in rice production in China for the past 15 years. Transgenic cultivars were selected based on co-

transformation using hph (selectable antibiotic marker gene, hygromycin phosphotransferase). However, during the subsequent progeny selection, careful molecular analysis helped us select a MH63-CMS-*Bt* line without the marker gene. Finally, our hybrid rice was selected and used in the field carrying only hybrid *Bt* genes but without any selectable marker gene. This was possible because of the integration of the transgenes (*Bt* and hph) in two different loci.

Hybrid *Bt* rice (Shanyou 63) was field-tested in Wuhan, China, in 1999 and 2000. Transgenic plants were field-tested in natural and repeated heavy manual infestations of two lepidopteran insects, leafhopper and yellow stem borer. The transgenic hybrid plants showed high protection against both insect pests. The yield of the hybrid *Bt* rice was 28.9% more than that of the non-*Bt* hybrid. Considering that the field trial was conducted without the use of chemicals after transplanting, these results demonstrate that expression of the *Bt* fusion protein in the genome of the transgenic hybrid rice provided season-long protection against the natural outbreak of heavy manual infestation of the two lepidopteran insects.

Where do we go from here?

Rice grows in different ecosystems. Adaptive cultivars already developed by plant breeders should be used for incorporation of the *Bt* gene. For example, we have developed deepwater rice (DWR) with the *Bt* gene. DWR is grown in areas usually flooded deeper than 50 cm (sometimes up to 400 cm) for one month or longer during the growing season. Consequently, any traditional tall and elongating rice cultivar can be grown in these areas. Yield is generally low (1-2 t/ha) and very often reduced further by insect attack.

The application of insecticides to DWR causes many problems. Ordinary ground applications are limited to the pre-flood period and spraying is not possible when the water is deeper than 50 cm. Moreover, pesticides could affect beneficial natural predators and cause fish mortality. Fish harvested from DWR are a major source of income and protein for the people living in these areas. The development of DWR varieties with resistance to yellow stem borer

will help farmers in flood-prone ecosystems significantly. We have successfully introduced a cryIA(b) gene (provided by Novartis) into an elite DWR Vaidehi variety (6) and homozygous material is now ready to transfer to India for field testing and further use.

Bt will play an important role in meeting the increasing global need for food, but its use is subject to social, economic, and ecological pressures. Several adaptive varieties must be used for each crop. A system well adapted and optimized in United States farms for a larger land area may not be applicable for a country such as India having a large number of small farms. Suitable systems need to be developed for various crops and countries, which can only be achieved by increased field testing, evaluation, and data collection. *Bt* toxins are insecticidal and, as with conventional chemical insecticides, insects may quickly adapt to them unless *Bt* plants are carefully designed and deployed. A greater assurance of durable resistance can be achieved if a *Bt* toxin is combined with a second type of toxin (1).

It is critical that *Bt* remains a viable option for agriculture. After 30 years of successful use, *Bt* is considered one of the safest pesticides available. It is biodegradable and has no adverse effects on beneficial insects, other wildlife, and farm workers. Successful *Bt* crops including the first commercial *Bt* hybrid rice, have now been thoroughly evaluated in fields. In the future, the use of *Bt* crops within an adaptable Integrated Pest Management strategy may lead to durable and environmentally friendly plant protection. The successful expression of the *Bt* fusion gene in hybrid rice provides a good resource for management of rice pests in tropical Asian countries.

Sources

1. Perlak FJ, et al. 1990. Insect-resistant cotton plants. *Bio/Technology* 8: 939-943.
2. Alam MF, et al. 1999. Transgenic insect-resistant maintainer line (IR68899B) for improvement of hybrid rice. *Plant Cell Reports* 18: 572-575.
3. Tu J, et al. 2000. Field performance of transgenic elite commercial hybrid rice expressing *Bacillus thuringiensis* delta-endotoxin. *Nature Biotechnology* 18: 1101-1104.
4. Datta K, et al. 1998. Constitutive and tissue-specific differential expression of cryIA(b) gene in transgenic rice plants conferring resistance to rice insect pest. *Theoretical and Applied Genetics* 97: 20-30.
5. Frutos R, et al. 1999. Managing insect resistance to plants producing *Bacillus thuringiensis* toxins. *Critical Reviews in Biotechnology* 19: 227-276.

6. Alam MF, et al. 1998. Production of transgenic deepwater indica rice plants expressing a synthetic *Bacillus thuringiensis* cryIA(b) gene with enhanced resistance to yellow stem borer. *Plant Science* 135: 25-30.

Swapam K. Datta
International Rice Research Institute (IRRI)
Manila, Philippines
mailto:s.datta@cgiar.org

Reprinted from ISBN News, December 2000

Moving?

Please prepare a paragraph including information about past and present postings, new address, telephone, fax and e-mail address and send to your Newsletter Editor for inclusion in the Members on the Move section in the next issue of the Newsletter. Editor's address can be found on page 2.

Also, please inform the SIP Office of your new address. The address of our new SIP Office can be found on page 2.

MEMBERS ON THE MOVE

Steven Arthurs began a 2 year postdoc in January with Dr. Kevin Heinz at the Department of Entomology, Texas A&M University. Steven will be looking at the potential of entomopathogenic nematodes for biological control of western flower thrips infesting ornamental crops. If any readers are interested in this project, Steven would be happy to provide further details. He can be contacted at:
Department of Entomology
MS 2475
Texas A&M University
College Station, TX 77843-2475
email: sarthurs@urbanento.tamu.edu
phone: (979) 862 3407
fax: (979) 845 7977

Sam L. Elliot has moved from Amsterdam to the Leverhulme Unit of Imperial College and CABI-Bioscience where he will be working on control of the red locust with Green Muscle, particularly at ecological and evolutionary aspects of host-pathogen interactions. Sam's new address is:

Leverhulme Unit for Population Biology and
Biological Control
NERC Centre for Population Biology and CABI
Bioscience
Imperial College at Silwood Park
Ascot, Berkshire SL5 7PY, UK
Tel: +44 (0)1491 829172 - temporary
Fax: +44 (0)1491 829123
E-mail: s.elliott@cabi.org

PUBLICATIONS

More Information about SPARC:

Declaring Independence: A Guide to Creating Community-Controlled Science Journals is a how-to handbook and web site that guides editors and editorial board members of scientific journals toward responsible journal publishing. To see the site or download a PDF version of the handbook, please go to: <http://www.arl.org/sparc/DI>.

As you know, many editors and editorial board members of STM journals are unaware of the serials crisis; more to the point, they are unaware they may be part of a journal for which high cost and unsatisfactory policies contributes to the serials crisis. DECLARING INDEPENDENCE presents this issue in a straightforward way to researchers who may wonder what their responsibilities are and how best to change the status quo.

DECLARING INDEPENDENCE is divided into three sections: the first helps researchers determine whether or not their journal serves its community; the second presents alternative publishing options; the third guides researchers through an evaluation process of these alternative options. There are also extensive web resources and journal pricing charts included in the appendices, along with a bibliography.

Our goal throughout was to back up librarians' excellent educational efforts on campus. DECLARING INDEPENDENCE is a complement to the work many of you have already undertaken vis a vis SPARC and the Create Change campaign. The handbook will be mailed (via traditional post) to about 1400 editors and editorial board members of STM journals (based on the Create Change database of the 100 most expensive journals, located at www.createchange.org/resources/journal.html). We are also distributing it through scientific associations and at ALA. Each SPARC and ARL library will receive five copies; any institution can order up to 50 additional copies, free of charge, by sending an email to pubs@arl.org.

Thank you very much for your support. Please post this within your institution and/or to any relevant

EDITORIAL

Can we declare independence from high-priced books?

In a continuing effort to address the high cost of scientific publications, I would like to bring your attention to an organization that is doing something about it. The Scholarly Publishing and Academic Resources Coalition (SPARC) and the Triangle Research Libraries Network (TRLN) have launched an initiative to tackle the escalating cost of scientific journals, which they claim has fallen purely to commercial interests, with the maximizing of profits as the controlling goal. SPARC is an international alliance of over 200 college and research libraries building a more competitive communication marketplace to address the high cost of information. Their initiative was launched late last year through the publication of a handbook entitled "Declaring Independence: A Guide to Creating Community-Controlled Science Journals." (See below for further information on this initiative and on how to obtain this publication).

Although we in invertebrate pathology are being relatively well-served by journals such as BioControl, Biocontrol Science and Technology, Biological Control, Journal of Invertebrate Pathology and the numerous entomological journals, we have not been so fortunate as far as the recent cost of textbooks is concerned. Much of SPARC's initiative can as easily be applied to publication of scientific textbooks as it is to journals. Are we ready to declare independence and create community-controlled science books? Letters to the Editor are welcomed.

Mark Goettel, Assistant Newsletter Editor

listservs, and feel free to email me any feedback or comments.

Alison Buckholtz
 SPARC--The Scholarly Publishing & Academic
 Resources Coalition
 alison@arl.org www.arl.org/sparc
 phone: +202 296 2296

OBITUARIES



Thomas C. Cheng
November 5, 1930- November 28, 2000

Thomas C. Cheng, a well-known and well-respected international authority in the fields of parasitology, molluscan biology, and shellfish diseases died on November 28, 2000, Charleston, South Carolina. He was 70 years old.

Tom was born on November 5, 1930 at Nanking, China. Tom's family moved to the United States when he was six years old to live in Chicago, Illinois. They spoke very little English but arrived without any problems and soon he attended the local public schools. In 1943, he was enrolled at Greenbrier Military School, Lewisburg, West Virginia and graduated in the spring of 1947. He then attended Wayne State University at Detroit, Michigan and graduated in 1952 with an A.B. degree in Biology. While at Wayne State, he was initiated to the excitement of studying parasitic animals by Professor Dominic L. DeGiusti. He then joined the U.S. Army as a commissioned officer from 1952 to 1956 and worked in the clinical diagnostic laboratory performing parasitology, serology and bacteriology serving overseas in the Korean conflict. These experiences triggered a greater interest in

parasites, and upon discharge from military service he enrolled in the graduate program at the University of Virginia and received a M.S. degree in Biology in 1956.

Tom continued his graduate studies at the University of Virginia in the area of parasitology and worked under the co-direction of Professor Bruce Dodson Reynolds and Professor Horton Holcome Hobbs, Jr. on the systematics, morphology and life history of the trematode family Brachycoeliidae. Tom stated on numerous occasions that both Professors Reynolds and Hobbs encouraged and guided him during his first attempts at an original investigation. He was awarded the Ph.D. in 1958.

In 1958, Tom accepted his first faculty position at the University of Maryland, Baltimore Md as an instructor-assistant professor. After one year, he joined the department of Biology at Lafayette College, Easton, Pa. During the six years at Lafayette College he taught parasitology, microbiology, general biology, physiology and invertebrate zoology. In addition to his teaching duties, he formulated and wrote his first book entitled "The Biology of Animal Parasites". It was well received and became a popular textbook for an introductory course in parasitology. In 1964, he was awarded a National Institutes of Health Fellowship and traveled to the Pacific Biomedical Research Center at the University of Hawaii, Honolulu, Hawaii where he worked as a visiting scientist on the modes of infection of *Achatina fulica* by the larvae of *Angiostrongylus cantonensis*.

After this one-year fellowship, Tom returned to the U.S. mainland and was appointed Chief of the Immunology and Parasitology section at the U.S. Public Health Service Northeast Marine Health Sciences Laboratory at Narragansett, Rhode Island. It was here that he conceived and started one of his most significant scholarly accomplishments, "Marine Molluscs as Hosts for Symbioses with a Review of Known Parasites of Commercially Important Species" that was published in the 5th volume of *Advances in Marine Biology*. He then returned to the University of Hawaii to join the Department of Zoology.

After five years at the University of Hawaii, Tom returned to Pennsylvania and created and directed the Institute for Pathobiology at Lehigh University for 12 years. This twelve-year period was his most productive in research and teaching. He attracted many bright and energetic graduate students and

post docs world-wide. It was an exciting time for all and the pace in the laboratory was fast and demanding. A normal day began by 8:30 am and finished well into the night, sometimes past midnight with only 2-3 hours for supper and to see the family. Only Saturday afternoons and Sundays were free if the work load allowed. Despite the demanding schedule and high expectations, it was an exciting time. Both at the University of Hawaii and at Lehigh University, he would often end the grueling day with "lets go out for a beer" and hosting the entire lab at a local establishment. Tom was very proactive with his students. When possible, he took his students to as many parasitological meetings and functions as possible.

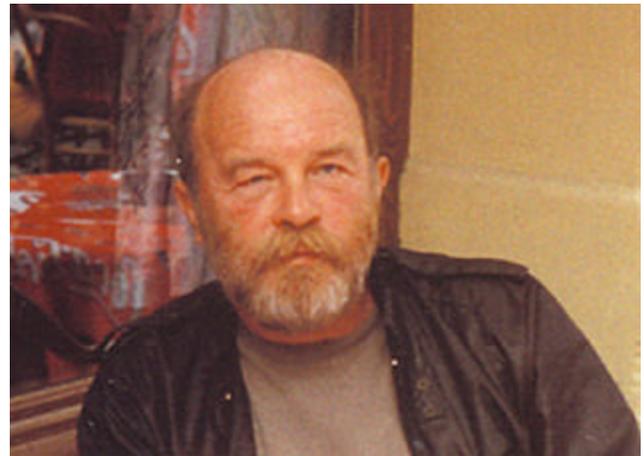
In 1980, Tom took on a new challenge and joined the Medical University at South Carolina at Charleston, South Carolina to create the Marine Biomedical Research Program. He served as Director of this program until his retirement in 1993. In addition to his duties as the Director of the Marine Biomedical Research Program, he accepted the position as Acting Chairman of the Department of Cell Biology and Anatomy at the Medical University for 18 months. It was during this time that he was recognized by the scientific community for his significant contributions to the advancement of molluscan immunology and host parasite interactions. He received numerous awards including a Senior Fulbright Scholar, Directeur de Recherche Award, and the Montpellier Medal, and was very active in lecturing and chairing many national and international meetings and congresses.

Tom retired in 1993, but still remained active in molluscan diseases and immunology until the end. During his 7 years of retirement, he still continued to write research grants and work at the bench on clam and oyster diseases. Once diagnosed with terminal esophageal cancer, he continued to work daily for several hours until the fatigue and pain overcame him, forcing him to retreat to his home for rest. Tom Cheng was a gifted teacher and a bright and energetic scientist who influenced many young individuals to work in the area of parasitology and molluscan immunology. He published over 350 scientific papers, 22 books and served as Editor of the *Journal of Invertebrate Pathology* for 23 years and 20 years as Co-editor of *Experimental*

Parasitology. He directed 23 graduate students and 10 post-doctoral fellows. Tom Cheng made his mark in the field of pathobiology and did significant work to help the nation's shellfish industry. He will be missed, but his contributions to science will continue through his scholarly works and his students.

Reprinted with permission.

Rodrick, G. (2000). Thomas C. Cheng - In Memorium. *J. of Invertebr. Pathol.* 77, 1-12.



Tadeusz J. Poprawski
October 25, 1947-January 7, 2001

Tadeusz J. ('Tad') Poprawski, 53, passed away at his home in Weslaco, Texas, on 7 January 2001 after a brief battle with lung cancer. Tad was widely known and respected as one of the most versatile and broadly trained insect pathologists of his generation. He is survived by his wife, Natalia, and daughter, Kalinka, who lives in Montreal, Canada, as well as by his mother, brother, and sister, all of Belgium (where Tad was born on 25 October 1947). Tad earned both his B.Sc. Agric. (with Honors) and his Ph.D. (Dean's Honor List) at McGill University in Montreal, Canada.

Tad was never one with much tolerance for this sort of dry recitation of biographic facts, and it can truly be said that he never talked much about his own history. We were not alone in believing, for example, that Tad had been born in Poland and were surprised to discover that he was, in fact, born in Belgium. Indeed, those who had the privilege to

know Tad as more than a passing acquaintance knew well that he was a man of many surprises, with a boundless zest for work and life.

Tad had an unusual breadth and level of expertise in the fungi, viruses, bacteria, protozoans, and nematodes affecting insects as well as of insect parasitoids and predators. In addition to being an exceptional organismal biologist, Tad was also thoroughly well versed in the theory and practice of bioassays and experimental design, and in the principles and practices of biological and microbial control and integrated pest management. The level of this expertise was reflected in the appointments he repeatedly received to highly responsible assignments that led him to nearly every corner of the world. His remarkable scientific versatility and ability to speak many European and Slavic languages made him a distinguished representative of the Agricultural Research Service in his many long- and short-term assignments around the world

Tad's doctoral research focused on the microbial control of scarabaeid pests of turf. At the ARS European Parasite Laboratory during 1983-84, he was responsible for the collection of more than 250 isolates of pathogens affecting key pests of agriculture, as well as for the culturing, processing, and shipment of these organisms to international collaborators. The entomophthorean fungal pathogens of grasshoppers were the main focus of thirteen months as a Research Associate at the Boyce Thompson Institute where Tad worked in the ARS Insect Pathology Research Unit.

Tad's European background and broad abilities were again called on from 1985-1990 when he returned to the ARS European facilities (now moved to Behouset and renamed the European Biocontrol Laboratory) to oversee the program to discover, collect, ship, and conduct research on microbial entomopathogens. This position at the European Biological Control Laboratory was one from which he was assigned to explore for insect natural enemies and potential biocontrol agents throughout Europe, Africa, and Asia. From 1990-93, Tad was again brought back to the ARS Plant Protection Research Unit in Ithaca, NY, to lead the laboratory and field research programs on fungal biocontrol of Russian wheat aphid and sweet potato whitefly.

In 1993 Tad moved yet again from Ithaca to the Rio Grande Valley of Texas. There, as an employee of Texas A&M University, he collaborated with scientists of the ARS Beneficial Insects Research

Unit of the Subtropical Agricultural Research Center and continued his research on insect pathology and microbial control of sweet potato whitefly, Colorado potato beetle, Japanese beetle, onion thrips, brown citrus aphid, and other pests. Tad authored more than 130 research papers and reports and more than 30 abstracts for presentations at various scientific meetings.

Apart from his research duties, Tad was highly esteemed as a mentor and advisor who lavished his time and attention on students and collaborators from many parts of the world to provide them training in the techniques and concepts of many field and laboratory facets of insect pathology and biological control. His efforts in this area made substantial contributions to nurture and to refine the knowledge and capabilities of many insect pathologists and their laboratories in South Africa, Kenya, Mexico, India, Poland, Czech Republic, France, Russia and other parts of the former Soviet Union, as well as in Canada.

Tad was an enthusiastic supporter of the Society for Invertebrate Pathology. He was particularly active in the Microbial Control Division, and served as the Chair of the Endowment and Student Awards Committee. Through his extensive international connections, he identified many of the scientists and students honored with the Society's endowed memberships during the last several years.

In one of the types of quotes that can be found on calendars and other sources for such disembodied sayings, Robert Kirby is credited with observing that "The mark of a true professional is giving more than you get." Tad always gave freely of himself at work and leisure. Tad did not complain much about what life dealt him, even during this final illness. We have no doubt that Tad considered himself to be truly wealthy in the love and respect of his family, friends and colleagues, and that he was buffered against the bad times by an irrepressible *joie de vivre* that will always be a model of how to live well.

An internationalist by birth, breeding, and inclination, Tad and his wife, Natalia, were enthusiastic travelers who loved to immerse themselves in the local life, cuisine, and culture wherever they found themselves. It was always a joy to experience Tad in action at work or leisure, especially in an ethnically or culturally mixed group, where he could switch from one language to another (and yet another) with seamless facility and elevate the comfort level for all in an instant. His smile was

infectious, his laughter hearty and frequent, his hospitality warm and genuine. His friends were many, and he will be much missed and never forgotten by us all.

Richard A. Humber
Stephen P. Wraight
Connie Veland



Wladimir A. Smirnoff
September 1, 1917–November 1, 2000

Wladimir Smirnoff died of a cerebral haemorrhage at home, on November 1, 2000. He leaves behind his wife Alexandra, his daughters Nathalie, Olga and Tania, their spouses and his grandchildren. Dr. Smirnoff was born on September 1, 1917 in St. Petersburg, Russia, which is where he completed his university studies. He received a degree in forest engineering from The Forest Institute of the Soviet Union and a Ph.D. in Biological Control from the Forestry Academy. At an early stage he became interested in the problem of protecting forests against insect pests.

Around the end of the Second World War, Dr. Smirnoff fled the USSR with his wife and their first daughter, Nathalie. He accepted a position as a research scientist with INRA and conducted leading-edge research for 10 years in Morocco that focused on developing methods for controlling the scale insect of palms. During this period, he

completed a Ph.D. in Science at the Sorbonne in Paris, France. In the course of his research in North Africa, he crossed the Sahara Desert several times. He walked so fast on the sand, practically running, that his Moroccan collaborators nicknamed him “Faennec,” or sand fox.

In 1957, Dr. Smirnoff accepted a position as an insect pathology researcher with the Canadian Forest Service–Quebec Region. In his first studies, he isolated a very active strain of the nucleopolyhedrosis virus of the Swaine jackpine sawfly, a hymenopteran that causes severe damage in jack pine forests. He conducted research for the CFS for 28 years, making some very significant contributions to the advancement and recognition of insect pathology. More specifically, he isolated a number of entomopathogenic organisms such as microsporidia (*Thelohania pristiphorae*), nucleopolyhedrosis viruses (NPVs of *Eranniss tillaria*, *Pristiphora geniculatta*, *Archips cerasivoranus*) and flagellates (*Herpetomonas swainei*).

Dr. Smirnoff's greatest contribution to the biological control of forest insect pests was, without a doubt, the persuasive skill he brought to bear in convincing forest resource managers and Canadian society at large of the benefits of using ultra low volume (ULV) concentrations of the microbial insecticide *Bacillus thuringiensis* for the operational control of outbreaks of spruce budworm, the most destructive pest of coniferous forests in North America. Some of these ULV suspensions of *B. thuringiensis* were developed at the CFS-Quebec and can be sprayed at the rate of 2.0 to 2.5 L/ha using the requisite doses (20 to 30 BIU/ha). At a hearing before Quebec's public consultation board on environmental issues, he drank a glass containing a ULV suspension of *B. thuringiensis* to demonstrate to the shocked commissioners how safe he considered this product. This bacterium-based insecticide was subsequently adopted as a replacement for chemical pesticides and eventually became recognized as the microbial insecticide of choice for controlling the spruce budworm and other harmful forest lepidopterans in Canada and the United States.

Dr Smirnoff carried out most of his research at the Chute-aux-Galets Forest Research Station, located

near Chicoutimi in the Saguenay-Lac-St-Jean region, 250 km north of Quebec City. This station's activities enabled several dozen researchers and students from Canada and around the world to specialize in biological control of insect pests. The Chute-aux-Galets laboratory earned international recognition, and the ambassadors of 17 countries visited it in the late 1970s.

During his career and by the time he retired in 1984, Wladimir had published more than 300 scientific articles and earned many awards, notably the Parizeau Award conferred by the Association Canadienne Française pour l'Avancement des Sciences, the medal of the Chemical Institute of Canada and the award of merit of the Quebec Order of Engineers. He was an honorary member of the Quebec Biologists' Association, and was especially proud to be made an Officer of the Order of Canada. Wladimir was not one to rest on his laurels, though. In 1987, he was appointed Researcher Emeritus in the Canadian Forest Service and until recently he was investigating ways of using the essential oils from balsam fir to purify the air.

A tireless worker, dynamic and committed, he was very demanding of both himself and his collaborators and he always kept abreast of the latest scientific advances. Although Wladimir liked to be in the spotlight, he always endeavoured to ensure that his research would benefit society. His motto might have been: "Give reign to the spirit." He was a jovial humanist, a lively and witty person, as well as a very faithful friend with an abiding concern for the well-being of others.

Wladimir's excellent communication skills and his imaginative expressions made him a very popular guest speaker. But most of all, Wladimir was a great lover of nature, especially the Laurentian forest. It was this love that he conveyed in his paintings, which are full of sunshine, flowers, dreams and symbols. Wladimir's legacy to all of us, his family and friends, is the wonder of discovery and a belief in social and humanitarian commitment in science.

José Valéro, Ph.D.
Sainte-Foy, December 5, 2000



Professor Hitoshi Watanabe
October 7, 1929-November 17, 2000

Professor Hitoshi Watanabe passed away on November 17, 2000 after a long illness due to a liver disorder. His passing ended an outstanding career as an insect pathologist. Hitoshi was born on October 7, 1929 in Yokohama, Japan. Upon completing his high school education in Niigata city, he was accepted at the University of Tokyo, Faculty of Agriculture and graduated in 1954. He became a research scientist at the Kyushu branch of the Sericultural Experiment Station. After two years, he joined, as an assistant, the Laboratory of Sericulture, Faculty of Agriculture, University of Tokyo. During this period, he obtained his doctorate in 1961 on the genetics (heterosis) of the silkworm from the University of Tokyo, School of Biological Sciences. He continued to work in the Laboratory of Sericultural Science for 34 years and retired in 1990. He was promoted to associate professor in 1972 and to full professor in 1988 when he became chairman of the Laboratory. After retirement, he joined the faculty of the Tokyo University of Agriculture for two years.

In the late 1950's, Professor Aruga, chairman of the Laboratory, changed the focus of research from genetics to insect pathology. Henceforth, Dr. Watanabe became involved primarily in insect pathology with emphasis on the silkworm viruses: the baculoviruses, the cytoplasmic polyhedrosis virus, and the nonoccluded viruses. Among his important contributions were the demonstration of silkworm resistance to virus infections and the elucidation of the pathophysiological changes in virus-infected silkworm larvae with the use of radioautography and gel electrophoresis.

Dr. Watanabe published 133 papers, about 110 in insect pathology, 16 reviews and 5 books. In 1972, he was awarded the Sericultural Science Prize from the Japanese Society of Sericultural Sciences; in 1982, he received the Agricultural Science Prize from the Society for Agricultural Sciences of Japan and the Yomiuri Prize for Agricultural Sciences from the Yomiuri Newspaper Company for a series of studies on silkworm viruses.

He was very active in Japan in scientific societies and in education. He served as vice president (1988-1989) in the Japanese Society of Sericultural Sciences and as a trustee (1982-1986) in the Society for Invertebrate Pathology. During the period from 1972-1990, he was involved in 108 doctoral theses submitted to the School of Agricultural Sciences.

As a child, Hitoshi began collecting stamps. He specialized in collecting stamps picturing insects when he began his research on insects. In 1960, he first met Professor Edward Steinhaus who was in Japan on sabbatical leave to visit international centers involved in insect pathology. Hitoshi was surprised and pleased that Dr. Steinhaus also collected insect stamps and had written a paper on such stamps. At the 50th anniversary of the Japanese Society of Sericultural Sciences, Hitoshi was invited to display his stamp collection.

Hitoshi made his first official visit to the USA in 1969, when he was invited as an Assistant Specialist in the Department of Entomology and Parasitology, University of California, Berkeley. He worked with Y. Tanada in the Laboratory of Insect Pathology on the resistance of insects to viruses. He was highly productive, efficient and very much liked by the staff and students. Accordingly, he received a second invitation in 1984.

Dr. Watanabe is survived by his wife Haruko and a son and two daughters. Everyone, who has known him, will miss this modest, kind and distinguished insect pathologist.

Tosihiko Hukuhara
Nihon University

Yoshinori Tanada
Professor Emeritus
University of California, Berkeley

POSITIONS AVAILABLE

Research Post in Invertebrate Virology

An experienced virologist is required to carry out a one year feasibility study on microbial pathogens of marine invertebrates based at the Institute of Aquaculture, University of Stirling. Candidates should have a doctoral degree in virology or a related field, with experience in the isolation and culture of viruses and in the establishment of primary cell lines. Preferably, candidates should also have research experience with viruses of invertebrates.

Salary up to £25,000 *per annum* in the first instance. It is intended that this post will become permanent. Contact: Professor C. Sommerville, Institute of Aquaculture, University of Stirling, Stirling FK9 4LA, Scotland. Tel. 01786 467880; Fax. 01786 472133; Email cs3@stir.ac.uk.

Insect Molecular Biologist, Department of Entomology College of Agricultural and Environmental Sciences the University of Georgia

Applications are invited for a twelve-month, tenure-track faculty position at the ASSISTANT/ASSOCIATE PROFESSOR level. The successful candidate will integrate genetic, molecular and cellular approaches in a creative research program of potential relevance in managing insect populations or behaviors.

Areas of particular interest to the Department are insect/pathogen interactions and neuropharmacology. This position (75% research-25% teaching) will be located on the Athens campus. Opportunities exist for joint staffing in the Department of Biochemistry and Molecular Biology. Collaborative opportunities abound including participation in an Applied Genetics Initiative and the Center for Tropical and Global Emerging Diseases (<http://www.uga.edu/ctegd/>).

Candidates must have an earned doctorate in a biological science; training and experience in entomology is essential. The successful applicant should have a well-recognized and independently funded research program, a strong record of peer-

reviewed publication, excellent communication skills, a strong commitment to teaching, and well-defined objectives for the research program. Send curriculum vitae, reprints of two of your most important publications, a statement of research interests, and the names of three references to: Dr. Michael J. Adang, Search Committee Chair, Department of Entomology, The University of Georgia, Athens, GA 30602-2603. Telephone: (706) 542-2816, Fax: (706) 542-2279, E-mail: adang@arches.uga.edu.

Closing Date: Applications received by February 15, 2001 are assured of consideration.

The University of Georgia is an Equal Opportunity/Affirmative Action Institution Women and Minorities are Encouraged to Apply

Post-doctoral Position, Department of Entomology and Center for Integrated Plant Systems, Michigan State University, East Lansing, Michigan.

A post-doctoral position is available for study of entomopathogens infecting the Asian long-horned beetle (ALB), *Anoplophora glabripennis*. This cerambycid is entering North America from China in solid-wood packing materials at port cities and readily attacks most hardwood species; APHIS is currently attempting to eradicate this beetle in New York City and Chicago by identifying infested trees that are then cut, chipped, and burned.

To prepare for the possibility that ALB will not be eradicated from North America, we are studying natural enemies of ALB for biological control and the development of ALB-resistant trees. The objectives of this study are to (1) assist in optimizing a method for rearing a native cerambycid, the cottonwood borer (CWB), *Plectrodera scalator*, for use as a surrogate host for ALB entomopathogens; (2) isolate and identify entomopathogens from ALB in quarantine laboratories in North America and from collections made in China; (3) propagate, purify, and bioassay pathogens and protein toxins, including those from *Bacillus thuringiensis*, in CWB and ALB; (4) assist in the development of an *in vitro* toxin bioassay using ALB midguts in collaboration with other researchers.

Travel to China and to quarantine laboratories in North America may be required. Interests and skills in insect rearing, bioassay, pathogen diagnostics, microbiology, microscopy, and basic laboratory

skills are preferred, however, because this is an interdisciplinary project, collaborations with other researchers is encouraged. The appointment is for one year with a possible extension pending funding. For further information please contact Dr. Leah Bauer: call: (517)-355-7740, e-mail: LSBAUER@msu.edu or write to: 206 CIPS, Michigan State University, E. Lansing, MI 48824.

Michigan State University is an Affirmative Action/Equal Opportunity Employer

FUTURE MEETINGS AND WORKSHOPS

International Conference: "Achievements of Biotechnology for the Future of Mankind"
Samarkand State University - Hebrew University of Jerusalem, 11 - 18 June 2001

Purpose: The main goals of the conference will be to exchange scientific information with Israeli colleagues in the field of biotechnology; development of joint studies between Uzbekistan and Israel in the fields of agricultural, food production and environmental quality sciences; help in introduction of the developed Western biotechnology in agricultural complex in Central Asia region; enhancement of the level of education in current biotechnology.

Possible topics of the Conference:

- I. Agricultural biotechnology
- II. Biotechnological methods in the ecology and soil science
- III. Food Biotechnology

We are planning to invite leading scientists from Central Asia region and other parts of the former USSR along with scientists from Israel and other western countries. Official languages of the of the Conference will be English, Russian, Uzbek. The deadline for applications and Extended Summary is March 15, 2001. Extended Summary should be in accordance with Guidelines for the preparation of manuscripts.

For participants from foreign countries the organizing fee is \$100, for participants from countries of CIS (the former USSR) is \$25, for participants from Uzbekistan is 3000 sums of Uzbekistan. Payments should be made during reception or sent to the account number of the Conference. Abstracts of the Conference will be

issued by the Samarkand State University printing house.

The Conference will be hosted by the Samarkand State University (Republic Uzbekistan). Samarkand is one of the geographical and economic centers of the modern Uzbekistan and well known as one of the centers to world civilizations with their own unique historical monuments. The city is situated comparatively nearby other historical places of Uzbekistan such as Bukhara and Khiva. Visiting the historical places of our region will be included in the cultural program of the Conference. Besides the Samarkand State University, a number of institutes and companies involved in applied and theoretical aspects of biotechnology are located in Samarkand. Samarkand area has a developed agricultural infrastructure which includes agro-industrial enterprises and associations.

Anyone interested in attending should submit an application form and an abstract by e-mail or on a diskette in Word format to:

Prof. Z. Ismailov, Biological Faculty, Uzbekistan Samarkand 703004, Samarkand State University, University Ave. 15, Tel-Fax: 998-662-33-34-87 (for participants from Uzbekistan and other CIS countries).

or

Prof. L. Chernin, the Otto Warburg Center for Agricultural Biotechnology, Faculty of Agricultural, Food and Environmental Quality Sciences, the Hebrew University of Jerusalem, P.O.B. 12, Rehovot 76100, Israel, E-mail: chernin@agri.huji.ac.il

Web-site: <http://www.samarkand.uz/conference.html>

A Centennial Symposium Commemorating Ishiwata's Discovery of *Bacillus thuringiensis* Kurume, Japan, November 1-3, 2001

The centenary of the discovery of *Bacillus thuringiensis* will be observed in this year, providing an opportunity to have a symposium commemorating Ishiwata's achievement. The symposium involves 21 discourses by the leading scientists working with *B. thuringiensis*.

Topics in the symposium will include:

1. Discovery of *Bacillus thuringiensis* by Ishiwata.
2. *B. thuringiensis* in natural environments: distribution and ecology.
3. *B. thuringiensis* and insect pests of agricultural and medical importance.
4. Anti-cancer-cell Cry proteins of *B. thuringiensis*.
5. Lectins of *B. thuringiensis*.
6. Antimicrobial action of Cry proteins.
7. Mode of action of insecticidal delta-endotoxins.
8. Improvement of BT insecticides: from molecular biology to application.

For further information please visit our homepage at the following address.

<http://bfri.fitc.pref.fukuoka.jp/bt100/index.html>

The Organizing Committee:

Keio Aizawa, Honorary Chairman

Michio Ohba, Chairman

Kyushu University Graduate School of Agriculture

Fukuoka 812-8581, Japan

E-mail: ohba@agr.kyushu-u.ac.jp

Takaharu Saruwatari, Executive Secretary

Biotechnology and Food Research Institute

Fukuoka Industrial Technology Center

1465-5 Aikawa, Kurume, Fukuoka 839-0861, Japan

E-mail: bt100@bfri.fitc.pref.fukuoka.jp

PAST MEETINGS

2nd US/Hungarian Entomopathogenic Nematode (EPN)/Bacterium Annual Meeting Visegrád, Hungary

The 2nd US/Hungarian Entomopathogenic Nematode/Bacterium Annual Meeting was held from September 17-19, 2000 in Visegrád, Hungary following the successful format established at the 1st Meeting held in Milwaukee, Wisconsin, during June, 1999. This meeting was organized by Andras Fodor (Eötvös University, Budapest) with assistance from Michael Klein (USDA/ARS, Wooster, Ohio), Catherine Mannion (University of Florida, Homestead), and Harry Kaya (University of California, Davis). More than 40 participants from

Europe and the USA contributed to the meeting with 21 papers and 5 poster presentations. Abstracts of the talks and posters can be viewed at the Entomopathogenic nematode (EPN) web site (<http://128.146.54.216/nematodes/>).

The focus of the first day presentations was on symbiotic bacteria, whereas the focus on the second day was on nematodes. A dynamic discussion ensued at the end of the last paper presentation on each day. Issues discussed included whether phase variation properly describes what occurs with the symbiotic bacteria, the need to have a nematode/bacterium workshop, the transfer of *Caenorhabditis elegans* technology to entomopathogenic nematodes, and the potential of selecting the nematode against specific pests.

In addition to formal interactions, informal discussions took place during the social events that were integrated into the meeting. This included a castle tour sponsored by Monsanto (St. Louis, Missouri), a cruise on the Danube River, and a final night banquet. The opportunity for USA participants to informally interact with the European participants was highly beneficial. Because this format facilitates the interchange of ideas between scientists working with bacteria and those working with nematodes, a third meeting is being planned for 2001 in Madison, Wisconsin. Details on the 2001 Meeting will be made available on the EPN web site as they become available.

BOOK REVIEWS

Field Manual of Techniques in Invertebrate Pathology: Application and Evaluation of Pathogens for Control of Insects and Other Invertebrates

Lawrence A. Lacey and Harry K. Kaya, Eds.

Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000

The *Field Manual* is dedicated to Dr. H. Denis Burges "in recognition for his pioneering and visionary research in insect pathology, and in particular, for his contributions with developing quality standards for bacterial pathogens of insects". The book is somewhat similar to the earlier books edited by Dr. Burges: "*Microbial Control of Insects and Mites*" (1971) and "*Microbial Control of Pests*

and Plant Diseases 1970-1980" (1981), but emphasizes techniques to a much greater extent. It covers the design of field experiments, methods of application, equipment, and the evaluation of control and/or assessment of crop damage for various pathogen-pest-crop combinations. Thus it is an excellent companion to the "*Manual of Techniques in Insect Pathology*" (1997), which deals predominantly with laboratory techniques for identification, production, and formulation of insect pathogens.

There are 71 contributors, representing 9 countries, mostly from the USA. The Introduction Section begins with a short review of microbial control then continues with an extensive chapter on the theory and practice of microbial insecticide application. Section II deals with statistical considerations of experimental design and analysis. Section III has three chapters covering ground-based application equipment, aerial application equipment, and dissemination of beneficial microbial agents by insects. Section IV is divided into five chapters giving an overview of pathogen groups, particularly viruses, bacteria, microsporidia, fungi, and nematodes. Section V dealing with naturally-occurring pathogens has a chapter discussing documentation of naturally-occurring pathogens and their impact in agroecosystems and a chapter assessing impact of naturally-occurring pathogens of forest insects. Section VI consists of a chapter on the introduction of exotic pathogens and documentation of their establishment and impact.

The largest section, Section VII, covers evaluation of entomopathogens in specific systems and is divided into 21 chapters covering: potatoes, crucifers and cucurbits, grain, rice, soybeans, cotton, mushrooms, greenhouses, forests, apples, citrus, small fruits, mint, nursery and landscape plants, grasshoppers and locusts, turf and grasslands, stored products, urban pests (cockroaches, ants and termites), livestock and poultry pests, mosquitoes and black flies, and terrestrial mollusc pests. This allows for a wealth of specific information dealing with the interactions between various pathogens and pests or crops that determine which techniques of application or evaluation are most useful in the different systems. This section will be particularly valuable to people working with pests or crops for the first time because it provides some of the benefit of the experience of people who have worked with these systems.

Section VIII deals with evaluation of transgenic

plants for suitability in resistance management programs. Section IX deals with resistance to insect pathogens and strategies to manage resistance. Section X covers guidelines for evaluating effects of entomopathogens on non-target organisms.

This book will be most valuable to professionals and graduate students working on problems related to field aspects of insect pathology or the use of insect pathogens for microbial control of insect pests. It should be of interest to anyone working in IPM or insect ecology, where the effects of naturally occurring insect pathogens are often underestimated. There appear to be very few mistakes and the editors are to be commended for a job well done.

John J. Hamm
Tifton, Georgia

Burges, H.D. & Hussey, N. W. editors (1971) *Microbial Control of Insects and Mites*. Academic Press.

Burges, H. D. editor (1981) *Microbial Control of Pests and Plant Diseases 1970-1980*. Academic Press.

Lacey, L. A. editor (1997) *Manual of Techniques in Insect Pathology (Biological Techniques Series)*. Academic Press.

LETTERS TO THE EDITOR

A call to disentangle scientific and politic issues on *Bt*.

During the last SIP meeting in Mexico, the taxonomy and phylogeny of a relatively large group of gram positive bacteria named *Bacillus cereus sensu lato* came under debate, notably following the talk of Dr. Anne-Brit Kolsto (University of Oslo) on the genetic relationship of these different species. This group comprises *B. cereus sensu stricto*, *B. thuringiensis*, *B. mycoides* and *B. anthracis*.

B. thuringiensis is an insect pathogen widely used as a biological control agent for crop protection. Most of the strains of *B. cereus sensu stricto* produce extracellular enterotoxins that can cause food poisoning in man and some *B. thuringiensis* strains have also been shown to be capable of producing enterotoxins. *B. anthracis*, for its part, is the

causative agent of anthrax in humans and animals.

The distinguishing genotypes characterizing *B. anthracis*, *B. cereus* and *B. thuringiensis* are genes for pathogenicity that are carried on plasmids. Based on genetic characterization and analysis of chromosomal genes, Dr. Kolsto showed that some *B. thuringiensis* strains are often more closely related to *B. cereus sensu stricto* than to other *B. thuringiensis* strains and that *B. anthracis* strains cluster within a cluster of *B. cereus* and *B. thuringiensis* strains. The conclusion was that *B. thuringiensis*, *B. cereus* and *B. anthracis* may be viewed as varieties or subspecies of a single species *B. cereus* rather than as separate species.

Although started on a scientific ground, the discussion that followed this presentation was devaluated due to political and socio-economical considerations; one of the main reasons for maintaining the status of separate species for the different bacteria that constitute the *B. cereus* group being the economic and medical importance of the individual species. We may agree or not on the conclusions given by Dr. Kolsto but should we remind that such a discussion must be embedded on a rhetoric using scientific arguments ?

Although *B. thuringiensis* strains have been used for more than 40 years and have a good safety record, there have been a few reports indicating that, in some rare cases and/or situations, *B. thuringiensis* may not be as safe as we would like. We do not have to stop or bias any discussions on that topic because these findings do not fit with previously granted assumptions. Only the quality of scientific evidence and the critical evaluation of the data should drive the scientific discussion and allow us to make judgements upon which to make choices for providing solutions or recommendations on how to solve environmental problems or to base a technical regulatory framework.

Even if there is no evidence of greater hazards resulting from the use of *B. thuringiensis*, the conditions for the safe use of *B. thuringiensis* as a biopesticide, or via the use of crops genetically engineered to produce *B. thuringiensis* toxins, should still be investigated, and this investigation must be a scientific one. We agree on the fact that

science cannot be separated from politics and that scientific investigations are more and more driven by political and technological considerations. The conclusions on *B. thuringiensis* ecology, systematics, virulence etc., may certainly have an important impact on the future development of *B. thuringiensis* as a biopesticide and we have, as scientists, a critical role to play in providing the elements for a fully informed and critical discussion about these important issues of major public concern.

Discussions on the political consequences (notably on how the media will relate the information) of our scientific conclusions are essential. But we call here for a clear distinction of such discussions from those that should remain at the basic scientific level.

Vincent Sanchis^(1,2) and Denis Bourguet⁽²⁾

(1) Unite de Biochimie Microbienne, Institut Pasteur, 28, rue du Dr. Roux, 75724 Paris Cedex 15, France

(2) Unite de Recherches de Lutte Biologique, INRA La Minière, 78 285 Guyancourt, France.

ON THE WEB

Peg Rotstein, our Executive Secretary, has redesigned the SIP web site (www.sipweb.org). Now that the web site is located at the servers at the NSF Center for Integrated Pest Management, Peg has a lot more control over the design and content of the site. Along with aesthetic improvements, she has added new searching abilities and forms for posting positions and links. She is hoping to add a lot more functionality to the web site and is happy to hear comments, as well as suggestions for improving the site. Please contact her at sip@sipweb.org

EDITOR'S NOTES

As the first SIP Newsletter I edit goes to press, I am already indebted to several people for ideas, suggestions, corrections, and general hand-holding. Every new editor should have the immediate past editor and an experienced Executive Secretary as enthusiastic and exceptionally able assistants, and I thank Mark Goettel and Peg Rotstein for their time and patience in helping me set up the "system". Jim Harper, Just Vlak, and others who have worked to get this edition completed, especially with new

information needed for the change in meeting venue, also deserve my thanks and that of SIP members.

Because I don't (yet!) have Mark's experience with developing the newsletter, I ask the assistance of all SIP members in sending news and information that is of interest to other members. I hope that we can work together to keep the newsletter up to its current high standard and a useful and informative publication for society members. I'm looking forward to serving SIP in this capacity and to the opportunity to interact with as many members as possible.

Lee Solter

Don't Forget to Pay Your Membership Dues for 2001

To ensure that your membership remains current and that you continue receiving the Newsletter, please don't forget to return your dues notice with payment or access the web site for online dues payment. Please contact the SIP Executive Secretary if you have questions or need information about payment.

(See Page 2 for addresses.)



1. Vice President Harry Kaya and wife; 2. Denis Burges, “Now how can I get all this lovely pottery back to the U.K.?”; 3. Michio Himeno, Kikuo Sen, Professors Shibai and Sakai at the BBQ; 4. Mike Dimock at the banquet, “Honestly, it was this big!”

Photos from Guanajuato



5. Jeff Lord and his Mexican hat; 6. Lerry Lacey; 7. John Vandenberg; 8. Rosalind James; 9. Albert Pye; 10. Jorge Ibarra; 11. Paresh Shah; 12. Juerg Huber; 13. Luis Leite.

Photos from Guanajuato