

# newsletter

### society for invertebrate pathology

Volume 17, Number 4 November 1985

PRESIDENTIAL ADDRESS

Invertebrate Pathology: The Future

My objective at this pioneer centre of Sault Ste Marie is to comment on the past and present of our subject and armed with this perspective to make some projections concerning the exciting future for Invertebrate Pathology.

In every subject, the popularity of research oscillates. The oscillations affect the ability of the subject to attract backing and scientific talent. As a science, Invertebrate Pathology has increased exponentially in volume of research since the last World War. I now hasten to explain that I shall direct the rest of my remarks to the pathology of insects, because - and this is the only reason - I am not competent to speak incisively about the pathology of other Invertebrates or of marine life. Parallel to the science, industrial interest has increased exponentially, but erratically. Pure science gives industry material to develop. In response, industry provides a stimulus and funds, some for basic studies. Whatever your scientific interests, you cannot help but admit that science and industry progress to some extent together and are partially interdependent. Backing for our science has experienced a slight plateau. Certainly activity in insect pathology has not been helped by a number of factors: firstly, potential has sometimes not developed to match some people's expectations or has developed more slowly than expected; secondly, use of microbial insecticides has suffered from competition by the newer chemicals and thirdly a world trade slump has resulted in cutbacks. Trade has recovered but its impact on science is bound to lag behind.

Recently, however, our science has received a number of powerful stimuli, such as the promise of conventional genetics, genetic engineering and the development of new techniques like the use of monoclonal antibodies in immunology - to name but three. These innovations will advance invertebrate pathology. Also they will tend to take our subject into wider scientific realms, involving scientists at present not interested in the Society for Invertebrate Pathology. Impact of recent developments on industry has been dramatic. A whole new industry has arisen around genetic engineering, monoclonals, etc. In addition, many major agrochemical companies have devoted more resources to the search for alternatives to chemical insecticides. Prominent among their alternatives of choice have been the micro-organisms. I believe that our members should seek the interest of members of other societies and should try to extend their work with advanced technology. If you cannot keep up with the new technology in skills or resources, then co-operate with others who are developing these skills and resources.

As President, I have taken three steps to try to point the Society in the directions just described. 1. I have appointed a "New Initiatives Committee" to scrutinise our activities, and identify areas that might be improved. For this Committee, under the Chairmanship of Harry Kaya, I have chosen largely the younger members and members new to our discipline in order to foster innovation. 2. I have, with some success, attracted more industrial sustaining

members and I am trying to encourage the Society to make its activities helpful and interesting to industry. 3. I tried to capitalise on a recent encouraging development at my own Institute. We are rapidly responding to the modern concepts of bringing together many different methods of pest control, in integrated systems for each crop, to reduce reliance on chemical pesticides. In particular, our plant disease group expanded their research on microbial inhibitors and competitors of organisms that cause plant diseases. The new people found much in common with our Insect Pathology Section and we are sharing facilities and expertise. Hoping that other groups, worldwide, interested in this approach to plant disease control, might consider a common forum with our Society, I sounded the opinion in ten of the few such groups in different countries. I met all shades of opinion not collectively warranting present action, but may be worthy of another approach in the future.

To conclude, I urge you all to try to seek innovation and to keep our Society progressive. I look forward to enjoying with you the excellent programme that our hosts have designed for us at "the SOO".

Denis Burges 4 August, 1985

> MINUTES OF THE 1985 BUSINESS MEETING SAULT STE. MARIE, ONTARIO AUGUST 7, 1985

The Annual Business Meeting of the Society for Invertebrate Pathology was opened by President H.D. Burges at 10:30 am.
Minutes of the 1984 meeting were adopted.

All reports will be published in the Newsletter: only the highlights of each were presented, and were in turn accepted. Financial highlights, presented by Treasurer J. Fuxa, mentioned that sustaining memberships in the Society now total \$1600. \$4068 profit was paid from the 1984 Davis meeting. The Newsletter represents the major expense of the Society; \$6241 having been expended to produce three Newsletters and the Annual Meeting Program. The Treasurer urgently needs a computer, and a committee has been appointed to investigate purchases within the next year or two. Estimated expenditure in 1985-86 is approximately \$4000 more than income, due to publication of the membership list and directory. The Society expressed thanks to the Department of Entomology, Louisiana State University, for student and secretarial help and for permitting the Treasurer to spend time on duties of the office. Discussion addressed the possibility of higher interest rate investment of Society funds.

Auditors S. Jaronski and D. Streett declared the finances in good order.

Publications of the Society were discussed by President Burges. Thanks were extended to G. Wilson for the smooth transfer of Editorship and on-time production of the Newsletter. It was announced that Council had agreed to fund the full costs of the Directory of Invertebrate Pathology, being prepared by J.D. Briggs, as outside funding could not be found (\$1800 in 1984 and \$3041 in 1985). It was noted that the major investment in the Directory has been provided by Dr. Briggs and his staff. The Directory will be sent to all paid-up Society members, and the remaining copies will be sold at \$15 each. The Journal of Invertebrate Pathology was reported safe, although still losing money and falling in circulation; a 7% reduction in subscriptions occurred this year. Members are urgently asked to consider Journal subscriptions for themselves and their employers. Council responded to the suggestion of a title change to the "Journal of Invertebrate Pathobiology and Immunology", by voicing a preferance for the current name. However, if change is necessary, Council preferred Journal of Invertebrate Pathobiology, excluding "Immunology" from the title. The members present strongly supported Council's responses, which will be passed to Academic Press. Potential competition for the Journal from a new Entomological Society of America publication and from the new journal, "Diseases of Aquatic Organisms" was discussed.

Future meetings of the Society were announced. In 1986, the International Colloquium will be held in the Netherlands; see recent and future Newsletters. In 1987, we will meet in Gainesville, Florida. Council requests suggestions for 1988 and 1989. The International Colloquium in 1990 will be in Australia, probably

#### SIP NEWSLETTER

The SIP Newsletter is produced four times a year by the Society for Invertebrate Pathology. Annual dues (U.S. funds) in the Society are: regular members, \$11.00; and students, \$4.00. Members receive the SIP Newsletter and a copy of the abstracts of all SIP  $\mbox{\it Annual}$ General meetings free, whether or not they attend. Application forms for membership in the Society may be obtained from the Treasurer, Dr. James R. Fuxa, Dept. of Entomology, Louisiana State University, Baton Rouge, Louisiana 70803-1710 U.S.A.

Council Officers of the Society are:

Past President Secretary Treasurer Trustees

President H. Denis Burges, England Vice President John C. Harshbarger, USA Past President Wayne M. Brooks, USA Secretary Elizabeth W. Davidson, USA James R. Fuxa, USA John A. Couch, USA Brian A. Federici, USA John E. Henry, USA Hitoshi Watanabe, Japan

Send news items and other contributions to: Gary G. Wilson, Editor SIP Newsletter Forest Pest Management Institute Canadian Forestry Service P.O. Box 490 Sault Ste. Marie, Ontario, Canada P6A 5M7

DEADLINE NEXT ISSUE: JAN. 15, 1986

at the new conference center in Adelaide. D. Pinnock informed us that financial help is anticipated from Australian sources. Council has decided to discontinue the practice of holding a meeting in the U.S. during the year of an International Colloquium.

Membership Committee chairman L. Lacey encouraged solicitation of memberships from students and collegues. Volunteers are needed to help in the membership drive in Eastern Europe and the Soviet Union, Central and South America, Africa, the Middle East, and China, where currency difficulties are the major barrier to membership. If members know any organizations able to convert local soft currency to US dollars, please to contact Dr. Lacey.

The Color Slide Atlas, an excellent success, has nearly sold out. Thanks were expressed to R. Gaugler and his committee. The possibility of a reprint was suggested for next year.

J.D. Briggs requested suggestions for honorees for the 1986 Founder's Lectures. As we are meeting in Europe, he suggested that the honoree should be a conspicuous European Invertebrate Pathologist, irrespective of age or period.

As our representative to the International Union of Biological Sciences, Dr. Briggs related recent efforts to assure the continuity of Oleg Lysenko's culture collection and computer programs. A letter was sent to the Czechoslovak Academy expressing the concern of the IUBS by Dr. R. Colwell, president of the American Society of Microbiology and Chairman of the IUBS Committee on Endangered Collections. Assurances have been obtained that this collection will be maintained and available for future research use.

NSF and NIH have been asked for help with costs of attendance at the 1986 Colloquium for North American members. Due to recent policy changes, these requests must now compete with research proposals, and the likelihood of funding seems low. Some funds are available for scientists from developing nations to attend the International Congress of Microbiology, to be held at Manchester, U.K., 7-13 September, 1986.

Congratulations were extended to Dr. M. Martignoni and his committee on the publication of the Glossary of Invertebrate Pathology in five languages.

Highlights of the Division of Microsporidia, by G. Wilson, concerned availability of collections of viable spores and a potential Atlas of Ultrastructure.

The Division of Microbial Control, as reported by L. Lacey, approved partial support for publication of an "Annotated Bibliography on Safety of Entomopathogens". In 1986, a discussion on the status of research on microbial control in developing countries will be led by W. Otieno.

In brief discussion of the efforts of other Society committees, President Burges announced that the Nominating Committee was developing a slate of candidates for the next election. Archivist is reassembling and cataloging the Society archives. An article will be prepared for the IUBS news magazine, Biology International, about the activities of the Society. The SIP membership list will be published soon.

H. Kaya described the efforts of the New Initiatives Committee, which has been formed mainly of younger and recent members, for a fresh look at the activities of the Society. Many recommendations were presented to Council; most had been or are presently being addressed. However, two interesting new ideas are being developed further within Dr. Kaya's committee; these are 1) a forum section of the Newsletter for personal views, current research, and teaching topics, and 2) a recognition or award to outstanding graduate students.

J. Vlak presented slides and discussion of the conference site reserved for the 1986 International Colloquium in The Netherlands. Rooms have been reserved for 350 participants, and forms are available which will assure that members receive future announcements. Dr. Vlak urged any members requiring special meeting rooms to contact him immediately.

Dr. Cunningham announced that 161 persons were registered at the Sault Ste. Marie meeting.

The Business Meeting was closed at 12:04 pm.

Respectfully submitted, Elizabeth W. Davidson, Secretary.

#### REPORTS OF SIP OFFICERS, BOARDS AND COMMITTEES

The President has taken the liberty of editing out considerable detail from some reports and has inserted extra items into certain reports to avoid creating extra headings. To stimulate interest he has also broken with tradition by adding information about actions taken by this year's Council, as appropriate, after each report. The report of the Local Arrangements Committee for the 1986 Colloquium (Chairman Dr. Just Vlak) has been omitted, because it is almost identical to information given elsewhere in our Newsletters. However, John Briggs reports extra news on help with travel. For US citizens, prospects for help with expenses from the NIH and NSF are not good. If we do obtain funds, a committee under John's chairmanship will be set up to administer them. Some useful data from John includes:-

	US\$
Major airline fares, return	
New York to Amsterdam	719
Los Angeles to Amsterdam	1467
People's Express, return	
Columbus, OH to London (Gatwick)	428
London (Heathrow) to Amsterdam	100

Anyone travelling with KLM will be given a free air ticket from Amsterdam to the airport nearest the Colloquium centre at  ${\tt Veldhoven}\, {\tt \bullet}$ 

Anyone from Third World Countries who belongs to the "Society for General Microbiology (UK)" can apply for assistance to attend the XIV International Congress of Microbiology, UK, 13-17 September.

#### Treasurer

During the reporting period the treasury increased by \$8,178.82. The increase was largely due to a \$4,068.46 surplus from the Davis, CA, meeting. There was \$1,745.63 in interest, which, when adjusted for a full year, will be similar to interest earned in 1983-84. The high interest savings account rate dropped from 9.5% in September 1984 (when accounts were opened in Baton Rouge) to 7.5% on 30 May 1985. Dues in 1984-85 declined by \$845.03; SIP currently has 9 Sustaining Members (2 in 1983-84). The decline in

dues with a simultaneous small increase in membership was due to artificially high total dues in 1983-84, probably because the "accounting year" is not the same as "membership year"; the 1984-85 amount for dues is roughly the amount expected based on numbers of members in good standing [(523  $x $11) + (54 \times $4) + ($200 \times 2 \text{ Sust.}) + (arrears paid)].$ Newsletter expenses were artificially lower this year because the earlier date of the Treasurer's report does not include expenses for the May Newsletter as did the 1983-84 report. All Color Slide Atlas expenses and income to date occurred within the time period of the current report; the figures are encouraging because the Atlas balance is only -\$182.33 with 33 sets left at the last report from R. Gaugler. I have been unable to account for the 8 cents discrepancy in the final balance. This financial statement does not include  $\underline{\text{ca}}$ . £ (sterling) 3000 held in escrow by Dr. D. Burges from the Brighton (1982) meeting.

There were only minor problems and expenses with bank collection costs due to foreign exchange difficulties. Tax reporting was simple, with no problems. There were serious communication difficulties for a time with Academic Press, probably due to the change in ownership, but the problems seem to have ended with little damage since complaints from 1985 JIP subscribers have been negligible to date. Many headaches associated with the Treasurer's office derive from two points: the extra accounting, correspondence, and mailing problems due to members being retained 1-2 years in arrears of dues; and no computerization of SIP records, including the mailing and membership list not being directly under the Treasurer's supervision. The latter is not meant to reflect negatively on Dr. Don Roberts; I am very grateful for his help in this respect.

The forecast budget for 1985-86 expects a slightly smaller balance on hand than this year, due to commitments made by Council in 1985, but Society funds should remain in excellent health.

I wish to thank Dr. Jerry Graves, Head, LSU Entomology, for providing 15 h/wk departmental student worker help during the entire year to assist with book-keeping and major mailings.

James R. Fuxa

#### Secretary

The usual duties of the Secretary were performed, nothing unusual being encountered. Dr. Y Tanada stood as proxy for trustee Dr. H. Watanabe and Dr. D. Street for Dr. J.E. Henry. Only Dr. D. Roberts (Meetings Board) failed to submit a report. All other reports were submitted on time and I wish to thank all concerned for their prompt response.

Elizabeth W. Davidson

#### Publications Committee

Activities of the Publications Committee this year have been relatively limited. The editors of both the Journal of Invertebrate Pathology (JIP) and of the SIP Newsletter report that their respective publications are operating without problems from their perspectives (see reports of the respective editors).

Dr. Cheng indicated that the question of an assistant or associate editor is apparently not acceptable to AP because of added costs. Under present structure, there appears to be no pressure, need, or interest in increasing page charges. There was, however, a suggestion from AP to consider a name change for the JIP (see the JIP editor's report).

We should be aware that the Entomological Society of America has been trying (unsuccessfully) for several years now to get its membership to approve a major restructuring of its journals. If this does eventually take place, one of the proposed new titles would cover insect pathology and biological control, which might attract many of the submissions now going to JIP. This possibility should be considered relative to the JIP's current and future mission.

Dr. Cheng indicated that turn-around time now averages 6--7 months. Longer times are usually attributable to author inactivity at some point in the publication process.

No work toward obtaining an International library number has been conducted to date. I rely on Council for guidance on moving toward that goal relative to the Colloquium proceedings.

A list of SIP members will be sent to members as soon as  $\ensuremath{\mathsf{Don}}$  Roberts can make copies available.

Dr. John D. Briggs reported that he had been unable to attain further funding for publishing the updated Directory for Invertebrate Pathology beyond the \$500 donated by the Stauffer Chemical Company and the \$1800 commitment by Council last year. He presented a number of costed options for printing, distribution and sale of different numbers of copies.

James D. Harper

#### Action by Council

Council felt that the Directory should be left in limbo no longer. An option to print 1000 copies was selected and a further \$3041 was committed from SIP funds to cover the estimated \$5341 cost of printing, envelopes and postage. All members in goodstanding will receive a free copy. The expected excess of about 180 copies will hopefully be sold at \$15 each (postage paid), yielding a nett \$2457, thus reducing SIP net outlay to \$1384. It must be remembered that John Brigg's group at the Ohio State University bears the cost of updating and computerization.

The SIP sincerely thanks him for these services, his own time and sustained enthusiasm — a great asset to our discipline.

Denis Burges

#### Journal of Invertebrate Pathology

The <u>Journal of Invertebrate Pathology</u> has had another good year. There is no doubt that we are publishing the best manuscripts in the area of invertebrate pathology as defined in an earlier editorial (Cheng, T.C. 1972. J. Invertebr. Pathol. 20: 379-380).

During the period covered by this report, we received 135 manuscripts for consideration. Among these, 80 were accepted, 34 were rejected and 21 still being processed. These figures are fairly comparable to those in last year's report. The total number of manuscripts received has dropped from 156 to 135; however, this cannot be considered an alarming drop. In view of the federal funding picture for research, the decrease of 21 papers is not alarming.

Relative to subscriptions, the following information has been obtained from Academic Press, broken down under the headings "Institutional" and "Individuals":

	1983		1984		1985		
	Inst.	Ind.	Inst.	Ind.	Inst.	Ind.	
USA Foreign	387 296	61 48	378 275	61 50	354 243	82 32	
Subtotals	683	109	653	111	597	114	
TOTALS	79	792		764		711	

It is apparent from the above that in spite of the efforts of the Society's officers the total number of subscriptions remains below 1000. I am happy to report, that the <u>Journal</u> is not in danger of folding, although I doubt whether we can increase the number of pages per volume at this time.

Since the addition of extra pages per volume two years ago, the lag time for publication has diminished significantly. We have not received any complaints this year. All properly authored manuscripts are appearing in print in 6 to 7 months. Most of the delay is still the result of the carelessness of authors (i.e., omitting references, unedited manuscripts, submitting xerox illustrations, etc.).

The question was raised recently as whose obituary will be published in JIP? The standing policy is that we will publish the obituaries of persons who have served or are serving on the Editorial Board. Also, we will publish obituaries of persons who by general agreement had attained international stature as invertebrate pathologists. Queries should be directed to the editorial office. One omission that has troubled me is the failure of the person who had promised to write the late Dr. Frederik Bang's obituary to submit one. There cannot be any doubt in anyone's mind that Fred Bang was an internationally renowned experimental invertebrate pathologist.

The Editor wishes to take this opportunity to thank all members of the Editorial Board for their expert assistance during this past year. The flow of manuscripts, with a few exceptions, has been prompt, and each number has appeared on time.

Some of the older members of the Society and of its Executive Council may recall that within a year after I took office, a suggestion was advanced independently from several sources that the name of the journal should be changed to the <u>Journal of Invertebrate Pathobiology</u>. "Pathobiology" is a term coined about 20 years ago to designate that area of the biological sciences concerned not only with the study of the disease state (as the term pathology denotes) but also with such related areas as (1) the biology (including molecular biology, biochemistry, and biophysics) of the causative agents of infectious diseases; (2) modern epidemiology (or epizootiology) of diseases, including mathematical modes; (3) the in vitro culture of pathogens and related organisms; (4) the responses of the host to infections; (5) the pathophysiology of noninfectious diseases, e.g., nutrition-, toxin-, and physical insultrelated diseases, (6) genetic diseases, etc. Pathobiology, as readily recognized, is a considerably broader term than pathology.

During the past 16 years, the JIP has in fact reflected the results of research in pathobiology. Indeed, a more accurate title for the journal would be the <u>Journal of Invertebrate Pathobiology</u>. The suggested title would be more attractive to a broader range of modern life scientists. Perhaps the time has arrived to give serious consideration to a name change. The Council and membership of the Society should give some thought to this matter.

- 1. Journal of Invertebrate Pathology and Immunology
- 2. Journal of Invertebrate Pathobiology and Immunology
- 3. Journal of Comparative Immunology and Pathobiology

Your Editor welcomes your thoughts on this matter.

Thomas C. Cheng Editor-in-Chief

#### Reaction of SIP Council and Members

Although not unanimous, the majority of the Council preferred to leave the JIP title unchanged. If the publisher insisted on a change (bearing in mind that the JIP is the property of the publisher, not the SIP), "Pathobiology" would be tolerated, but the addition of "Immunology" would be most unwelcome. At the 1985 SIP Business Meeting, the membership endorsed this reaction unanimously.

Denis Burges

#### Membership Committee

The drive for new members is still in progress. The current strategy is to concentrate on recruiting new members in those countries without currency exchange problems. SIP brochures and application forms have been mailed to researchers working in fields in or related to invertebrate pathology who are not currently members and to SIP members whose professional positions (professors, directors, etc.) enable them to proselytize for our Society. Dudley Pinnock is responsible for the Australia and New Zealand areas, Isabelle Larget-Thiery is responsible for Western Europe, Dr, M.R. Tripp is responsble for recruiting marine invertebrate pathologists and I am covering North America and Southeast Asia.

Efforts to recruit members in some soft currency countries of Eastern Europe, Asia and South America were met with similar responses: the desire to join the Society is there; the financial wherewithal is not. Dr. John Briggs is our member at large who is working on a solution to this problem.

Lawrence A. Lacey

#### Progress in Council

An offer of Dr. Wellington Otieno to recruit members in Kenya and neighbouring territories was gratefully accepted, particularly because he is able to convert various African currencies to US \$ through a facility in his organization, ICIPE. Does anyone know of organizations in soft currency areas with a similar facility? If so, Larry Lacey would be delighted to hear from you.

#### Nominating Committee

The Nominating Committee consists of:

Drs. Y. Tanada (Chair), Howard Dulmage, Anne M. Lackie, Richard J. Milner, Sardar S. Sohi, Wayne M. Brooks (ex officio).

A letter was sent to each member to submit nominees by 1 May 1985. Unfortunately, only 2 members have submitted their list thus far. I shall dispatch a reminder letter to the tardy members.

Y. Tanada

#### Founders' Lecture

The 1986 colloquium will be the fifth year in which the Society has included the Founders' Lecture as an annual event. The International Colloquium in the The Netherlands will be a great opportunity for the Society to examine some of its roots. The land of Leeuwenhoek should inspire our Committee and the Society. It will be an opportunity to bring together the texts of the five Lectures in a quinquennial supplement to the Newsletter. Honorees are identified as individuals who have made seminal contributions to Invertebrate Pathology and the Lecturers are identified according to their current or recent contributions to Invertebrate Pathology. The Committee invites

nominations from members immediately.

John D. Briggs

#### IUBS Commission on Invertebrate Pathology

The Society for Invertebrate Pathology serves as the Commission on Invertebrate Pathology. The 22nd General Assembly of the International Union of Biological Sciences will be convened in Budapest, Hungary, 1-7 September 1985. A report on the activities of the Commission has been submitted for presentation to the General Assembly. Although the activities of the Commission appear to be those only of the Society, the status of a Commission provides opportunities for collaboration with other Commissions which have interests pertinent to invertebrate pathology. Further, IUBS is a non-governmental organization which provides conspicuous neutrality in advice to international organizations, and assures a communication channel to academies of sciences. A specific case in point is the opportunity to have the support of the IUBS Commission on Culture Collections, particularly the Committee on endangered collections. Dr, Rita Colwell, Chairperson of this Committee, wrote a letter to Czechoslovakia, encouraging the preservation of the collection of the late Oleg Lysenko. Whereas the Society may be viewed as an organization primarily incorporated in the State of Maryland, USA, the Commission is indeed a bonafide international organization which can provide useful reports from a non-governmental source.

John D. Briggs

#### Culture Collection Committee

At Davis in 1984, Council instructed the new President, Dr. Burges, to decide whether the Committee's main objectives had been fulfilled. It was suggested that a future committee might need one person to handle bacteria and another person in charge of all other invertebrate pathogens. The President was authorised to use \$500 to preserve culture collections at risk.

The President decided that the Committee had fulfilled its main objectives and that future activities should be confined to watching for collections at risk and to arranging for their preservation. After discussions with colleagues, he decided that one person was not likely to be readily knowledgeable about collections across so wide a field as "all pathogen types except bacteria" and that one person was needed for each major group.

The following committee was appointed by the President: Chairman and responsibility for bacterial collections; H.D. Burges. Committee members; S. Jaronski in charge of protozoan collections, C. Payne for viruses, D. Boucias for fungi.

No collection has been found at risk over the reporting  $\ensuremath{\mathsf{year}}_{\:\raisebox{1pt}{\text{\circle*{1.5}}}}$ 

Dr. Burges corresponded (as instructed by last year's Council) with colleagues in Czechoslovakia about the collection of Dr. Oleg Lysenko, who was expected to move to a different laboratory. Eventually the following assurance was received from Academicean B. Kvasil, President of the Czechoslovak Academy of Science, "... the departure of Dr. Lysenko from the Institute of Entomology and his move to the Institute of Microbiology of the CSAV will not, in any way, effect the possibility of the scientific community to use the Bacteria Collection, that will continue in performing all its functions with respect to the Council for Mutual Economic Assistance, the International Biological Control Organization and the World Health Organization." Following Oleg's sad death, Dr. Burges contacted Dr. Weiser. No immediate action was necessary and the matter will be reviewed in October during a visit by Dr. Weiser to the UK.

H.D. Burges

#### Glossary Committee

In December 1984 a new member was added to the Editorial Committee: he is Dr, Christopher C. Payne, a distinguished virologist and currently Head of the Department of Entomology & Insect Pathology of the Glasshouse Crops Research Institute, in England.

"Terms Used in Invertebrate Pathology in Five Languages: English, French, German, Italian, Spanish" by Mauro M. Martignoni, Aloysius Krieg, Harold, W. Rossmoore, and Constantin Vago, was published at the end of August 1984 by the U.S. Department of Agriculture, Forest Service (General Technical Report PNW-169). Copies of the 195-page multilingual dictionary have been mailed to key laboratories and libraries, worldwide. Copies are still available for distribution to interested colleagues, and may be obtained from Mauro Martignoni, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331, USA.

Work on the third edition of the Glossary proceeds at a slow pace. Presently, the Committee's activity focuses on revising and polishing definitions. The editor is also evaluating synonyms and selecting cross-references for the defined entries.

The second edition of the "Abridged Glossary" (1970) has been translated into Chinese by Yan Fang-Gui and Guan Zhi-He. This translation was published in 1982 by the Agricultural Publishing Company, in Beijing. The 113-page publication, distributed by Xing Hua Bookstore, also in Beijing, includes an introduction by the translators and the complete original text in English, as well as the Chinese translation.

Mauro E. Martignoni

#### Action by Council

A letter congratulating Mauro and his Committee on the publication of the "Five Language version" has been sent to Mauro.

#### International Union of Biological Sciences

Dr, John A. Couch, our representative on the "IUBS Committee of Biological Monitoring of the State of the Environment Activities" reports that little has been done because of restraints and constraints on travel. He believes that the SIP should discuss a description of the environmental activity aspects of SIP for publication in the News Magazine of the IUBS - Biology International. Other Societies have published such descriptions.

#### Council action

 $\ensuremath{\mathsf{Drs}}, \, \ensuremath{\mathsf{Briggs}} \, \, \ensuremath{\mathsf{and}} \, \, \ensuremath{\mathsf{Couch}} \, \, \ensuremath{\mathsf{agreed}} \, \, \ensuremath{\mathsf{to}} \, \, \ensuremath{\mathsf{present}} \, \, \ensuremath{\mathsf{the}} \, \, \ensuremath{\mathsf{suggested}} \, \, \ensuremath{\mathsf{article}} \, .$ 

#### New Initiatives

The New Initiatives Committee has been very active in 1984. It was given the following charge: (1) To prepare for the SIP Council by June 1985 a report on whether SIP activities are sound, whether new tasks should be undertaken and whether existing attitudes and emphases should be changed, and (2) by June 1986 to prepare plans for action for any of the Committee's ideas that the SIP Council wishes to follow up to stimulate the Council to act innovatively.

Through correspondence, the members of the Committee have provided some new ideas and regenerated some old ones. The Committee is made up of members who have not been very active in SIP for various reasons. Accordingly, the members are free from bias and have the potential to interject new ideas. Perhaps, the most difficult area for the members to

address was whether existing attitudes and emphases should be changed. In general, the members avoided this question.

Some of the new ideas and suggestions which have been proposed include: (1) increasing membership, (2) student awards (3) outstanding scientist awards, (4) SIP newsletter as a forum for viewpoints, (5) formation of new committees, and (6) placement of a student on the SIP Council. Some old ideas that generated interest among the members include: (1) issues surrounding the Journal of Invertebrate Pathology, (2) certification of pathologists, and (3) revival of the Culture Collection Committee.

Harry K. Kaya

#### Action by Council

A detailed, carefully reasoned, list of suggestions was presented to Council. Many were already ongoing or had already received much attention from Council. Council recommended some form of student awards and use of the Newsletter for more discussion articles for further study. It was felt that the Committee would form a useful permanent body to ensure innovation in SIP affairs.

Denis Burges

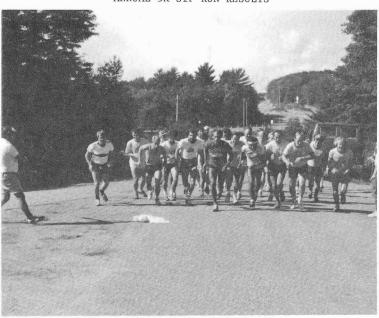
Addition to the report of the "Safety Group" as printed in the last issue of the Newsletter (Vol.17(3),pp 19).

#### Progress in Council

After considerable debate, Council agreed to consider financing the typist's labour to set the manuscript on a word processor at Dr. Lacey's laboratory to produce cameraready copy for the publisher, if both the "Safety Group" and the Division of Microbial Control expressed strong support. Later, at their business meetings, both groups expressed unanimous support. The Microbial Control Division committed \$100 of Divisional funds (which total about \$500) to support the venture.

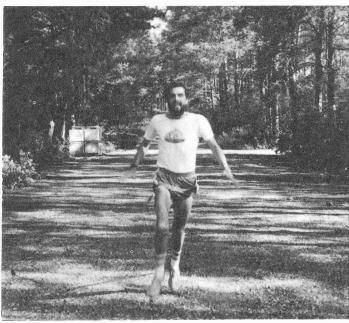
Denis Burges

#### ANNUAL 5K SIP RUN RESULTS



As race official Guido Caputo throws in the towel, the race begins.

The Third Annual SIP 5K run was held in the afternoon of August 7, 1985. Twenty-six runners, 5 female and 21 male ran or walked the course, which consisted of a section of Schulz Sideroad, a portion of the 5th Line, and the 2K cross country ski trail at Kinsmen Park in Sault Ste. Marie, Ontario. Using the railroad track as a starting line was almost a disaster as the Agawa Canyon tour train picked the same time to cross. One runner took a wrong turn in the bush, drawing two other trusting souls with him. These three runners managed to cut several minutes off their times by taking various short cuts. Unhappily, all three were disqualified for crossing the finish line from the wrong direction. Prizes were given to first and second place male and female runners. First place prizes were books of local interest, while second place runners each received a one litre container of locally produced maple syrup.



Norman Crook, first place winner with a time of 18:11.



Linda MacDonald receiving her prize from Denis Burges.

The names of the runners and their times are listed below:

1.	Norman Crook	18:11*
2.	George Soares	19:36**
3.	Bob Undeen	19:49
4.	Donald Steinkraus	19:58
		20:10
6.	Bob Granados	20:15
7.		20:28
	Keith Jones	20:35
9.	Bob Smith	20:40
10.	John Aronson	20:52
11.	Peter Luthy	23:17
12.	Doug Streett	24:20
13.	Tom Robert	24:30
14.	Iain Cunningham	25:22
15.	B.J. Ellis	25:39
16.	Peter Smits	25:56
17.	Martin Erlandson	25:59
18.	John Kuzio	25:59
19.	George Puritch	26:22
		29:30*
21.	Obie Obenchain	34:23
22.	Paul Fast	34:37
23.	Mary Fast	34:37**
24.	Jenny Gwynne	35:23
25.	Ann Cali	50:47
26.	Larry Lacey	50:47

<sup>\*</sup> first place

#### COMPARATIVE TUMOR PATHOLOGY

Some brief notes on the activities of the Working Group set up in 1984 on the questions of tumor pathology in invertebrates.

The 1985 SIP Meeting provided the opportunity for an informal but very positive workshop, which was enhanced by Dr. Harshbarger's survey of well defined data on mollusc and insect tumors, completed by a special mention for some occasional but very demonstrative lesions (neuroblastoma in a fluke ...). The workshop and the session which followed also provided a chance to examine and discuss various submitted slides, and to ask two fascinating questions: on one hand, cases described by Esther Peters (Smithsonian Institution, Washington, DC) of skeletal tumors in the stony corals Acropora palmata with calicoblasts abnormal growths possibly interpreted as true malignancies, and authoritatively compared by the author to other coral lesions (review to be published); on the other hand, a very curious specimen of Penaeid shrimp (Peneus monodon), exhibiting ectopic, abnormal areas of glandular tissue similar to mandibular organ. This latter case submitted by John Clerx and Don Lightner (Tucson, Arizona) needs further examination before it can be definitely evaluated as a metastatic adenocarcinoma; possibly the first example of authentic malignant tumor in a crustacean.

Other points were discussed, which confirm both the importance of histological criteria in the diagnosis of invertebrates tumors, and the difficulty to compare with certainty some cases with vertebrates tumors.

Plans have been proposed for the 1986 International Congress of Invertebrate Pathology to be held in Veldhoven, The Netherlands, 18-22 August. A specialized symposium is anticipated, with invited papers devoted to general epidemiology, tumors in corals, insects and molluscs, with special attention to viruses and chemical factors. The symposium will be tentatively followed by a contributed paper session on invertebrate tumors: participants are asked to submit, as soon as possible,

<sup>\*\*</sup>second place

their provisional titles to Doctor Lars Rasmussen, Institute of Biology, Odense University, Campusvej 55, DK 5230, Odense M., Denmark.

Professor G. Balouet

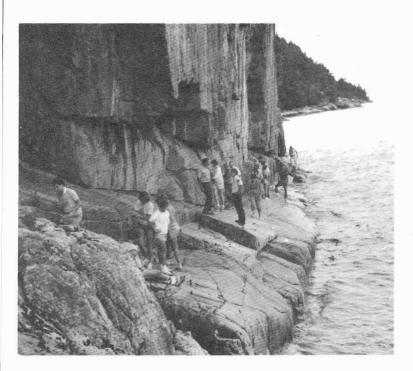
#### POST-CONFERENCE TOUR AT SAULT STE. MARIE

Most delegates headed homeward on Thursday afternoon, but a few intrepid souls took the tour to Lake Superior Provincial Park on Friday. Wellington Otieno, Maurice Odindo, Keith Jones, Martyn Collins, Wolfgang Krieg and Joanne Fransen travelled with John Cunningham and were met at the Park by Basil Arif who brought along Just Vlak and Peter Smits. It was a beautiful sunny day, everyone had a camera and Kodak should be showing a handsome profit in this year's fourth quarter!

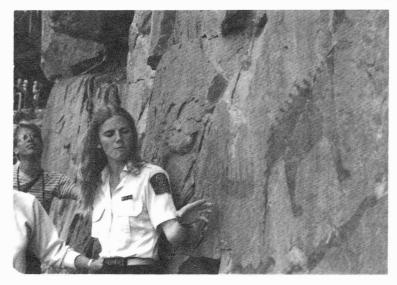
The first stop at Chippawa Falls proved of entomological interest when rock pools were found to be breeding sites for mosquito larvae. Then the party headed for the main attraction which was Indian pictographs at Agawa Bay. Carol Dersch, an Ontario Ministry of Natural Resources guide, led our party and discussed history and biology of the area. There are several sites in Ontario with Indian pictographs, but this is the only one which can be reached by land. The pictographs are on a sheer rock face and it is necessary to scramble over slippery rocks to view them.

Finally the party visited the Agawa Meadows which used to be a summer campground for the Ojibwa Indians. Warning signs indicating moose as a night hazard on the highway aroused considerable interest. Moose are plentiful in the Park, but usually only sighted at dawn and dusk and the largest animals observed were chipmunks and squirrels.

We hope our guests enjoyed a memorable day on their excursion North on Superior.



Tourists scramble over slippery rocks to view Indian pictograms. All attempts to build catwalks have proved futile due to ice and huge waves.



Carol Dersch of the Ontario Ministry of Natural Resources points out pictures of canoes, Misshepezhieu (fabulous panther) and mythical serpents while Keith Jones looks on.



On the shoulder of the Trans-Canada Highway, Maurice Odindo, Wolfgang Krieg, Martyn Collins and Keith Jones pose beside a cautionary sign.



The party at a scenic viewpoint on the Trans-Canada Highway overlooking Lake Superior.

#### SECOND ANNOUNCEMENT

IVth INTERNATIONAL COLLOQIUM ON INVERTEBRATE PATHOLOGY

in conjunction with the XIXth Annual Meeting of the Society for Invertebrate Pathology AUGUST 18-22, 1986

The Netherlands "Koningshof" Congress Hotel - Veldhoven

The outline of the scientific program of the IVth International Colloquium on Invertebrate Pathology in the Netherlands in 1986 (ICIP86) has been established. The third and final announcement and the abstract and registration forms will be distributed through the January/February issue of the SIP Newsletter. Detailed information on the conference was already given in the May issue of 1985 of the SIP Newsletter. The present information is meant to bring you up-to-date with the organization and the scientific program of ICIP86.

The Program Committee has tentatively arranged

The Program Committee has tentatively arranged fourteen general and seventeen special symposia. In addition, the scientific program is complemented by contributed paper sessions, poster presentations, workshops and divisional meetings. The Program Committee wishes to thank all colleagues, who initially responded to our questionnaire and all conveners who accepted our invitation to shape the symposia. The

following symposia have been scheduled:

#### General Symposia

Biological control of pests Conveners: Dr R.A. Samson and Dr J.M. Vlak G 1.

Genetic manipulation and improvement of Bacillus thuringiensis I
Convener: Dr A. Klier
Genetic manipulation and improvement of

3. G Bacillus thuringiensis II Convener: Dr D.J. Ellar

4. G

G 5.

- Convener: Dr D.J. Ellar
  Biological control of vectors with microbials
  Convener: Dr B.A. Federici
  Defence strategies of invertebrates
  Convener: Dr K. Söderhall
  Current status on the use of insect pathogens
  as biocontrol agents in agriculture
  Convener: Dr D.W. Roberts
  Pathogens of terrestrial and marine inverte-V G 6.
  - G brates

- Convener: Dr Ph. Johnson Enzootic and epizootic diseases of insect pests: strategies for control G Convener: Dr C.M. Ignoffo
- G 9. Biotechnology and production of insect patho-Convener: Dr R.A. Hall
- G 10. Insect control with nematodes

Convener: Dr R.A. Bedding Registration of bio-insecticides Convener: Dr H.D. Burges G 11.

- Molecular genetics of baculoviruses G 12. Convener: Dr P. Faulkner
- G 13. Microbial control of soil-borne insects Convener: Dr S. Keller
- G 14. Recent advances in microsporodiology Convener: Dr W.M. Brooks

#### Specialized Symposia

- Constraints to commercialization of biocontrol products Convener: Dr C.W. McCoy
- Formulations and application techniques of bio-insecticides
- Convener: Dr P.F. Entwistle System models in epizootiology and insect S 3. control
- Convener: Dr C.R. Flückinger Marine invertebrates: pathology and biotechnology
- Convener: invited Chemistry and mode of action of Bacillus thuringiensis endotoxin S 5. Convener: Dr P.G. Fast

- Physiology and ecology of Bacillus sphaericus
- Convener: Dr A.A. Yousten Standardization of Bacillus preparations Convener: invited
- Specificity of insect viruses in vivo and in vitro s 8.
- Convener: Dr R.R. Granados S 9. Insect RNA viruses
- Insect RNA viruses
  Convener: Dr N.F. Moore
  Viruses of parasitic insects
  Convener: Dr D.B. Stoltz S 10.
- S 11. Codling moth granulosis viruses Convener: Dr J. Huber
- S 12. Biology and taxonomy of entomogenous nematodes
- Convener: Dr G.O. Poinar S 13. Advances in insect parasitic nematology Convener: invited
- Quantative ecological evaluation of entomo-pathogenic fungi S 14. Convener: Dr B. Papierok
- S 15. Defence reaction against entomopathogenic
- Convener: Dr D.G. Boucias S 16. Comparative tumor pathology
- Convener: Dr G. Balouet
  Biology and taxonomy of entomogenous fungi
  Convener: Dr N.E. Wilding

The scientific program is organized in concurrent sessions of 90 min each, starting at 8.30 hr a.m., with synchronous coffee, tea and two hour lunch breaks. Those who wish to organize additional work shops should contact the program chairman, Dr Rob Samson.

Invited speakers for the symposia will be asked to prepare a manuscript of four pages to be published in the conference Proceedings. All contributors to contributed paper sessions and poster presentations will be allowed one page in the Proceedings. The Proceedings are available at the meeting. There will be an absolute deadline for submission of invited papers and abstracts: APRIL 15, 1986. Instructions to authors and a special abstract form to prepare a camera-ready copy you will find in the next Newsletter issue.

As of November 1, 1985, the all-inclusive rate for accommodation, meals, banquet etc. is anticipated to be approximately DF1. 700,— for single lodging and meals, and DF1. 550,— for double lodging and meals. The registration fee will be around DF1. 200,— for regular participants and approximately DF1. 100,— for accompanying members and students to be paid before APRIL 15, 1986. The deadline for accommodation reservation is also APRIL 15, 1986. Due to contract obligations we have to impose surcharges for late registrants and reservations of DF1. 50,— and DF1. 150,—, respectively.

On request the secretariat of the congress is prepared to send a personal invitation to attend the conference. It should be understood that such invitation is only to help delegates to raise travel funds or to obtain a visa and is not a commitment on the part of the organizers to provide any financial support.

As for the leisure, the traditional 5 KM SIP road race (or jog) will be held on the forested premises of the conference center, presumably on Tuesday August 19, at 7 a.m. Those who intend to set a new personal SIP road race record should start training

If there are any questions or suggestions regarding the program, please contact Dr Rob A. Samson, Program Chairman ICIP86, Centraalbureau voor Schimmelcultures, POB 273, 3740 AG Baarn, The Netherlands, Telephone 31-2154-11841.

Please send all your correspondence regarding the conference to: Conference Office ICIP86,  $\ensuremath{\text{c/o}}$  Mrs A.F.F. de Vries-Eras, Department of Virology, Agri-cultural University, POB 8045, 6700 EM Wageningen, The Netherlands, Telephone 31-8370-83090, Telex 45015 and 45917.

#### IVth INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY, AUGUST 18-22, 1986 THE NETHERLANDS

The Society for General Microbiology (SGM) has made a donation which is to be used to offer grants towards travel expenses and registration costs for students belonging to the SGM who wish to attend the above conference. Students wishing to take advantage of the SGM grant should write to Dr. C.C. Payne, Glasshouse Crops Research Institute, Worthing Road, Littlehampton, West Sussex, BN17 6LP, UK, before 31st January 1986, and include a letter from their supervisor or head of department confirming their student status and membership of the SGM.

For more details of the conference, contact: Conference Office ICIP 86, c/o Mrs. A.F.F. de Vries-Eras, Dept. of Virology, Agricultural University, P.O.B. 8045, 6700 EM Wageningen, The Netherlands.

Denis Burges

#### TAX DEDUCTIBLE

Expenses for US members paying their own way to the Colloquium in Holland in 1986 are tax deductible. At Don Roberts' suggestion, Just Vlak or myself will provide a suitable letter for anyone from any country needing documentation.

Denis Burges

### INTERNATIONAL CONFERENCE ON TROPICAL ENTOMOLOGY Nairobi, Kenya - 1986

The International Union for Biological Sciences (IUBS) has accepted a proposal made by the Council of the International Congress of Entomology that a special international conference be held to focus attention on tropical entomology both because of the importance of the subject and also because it relates to the IUBS programme "Decade of the Tropics". The International Centre of Insect Physiology and Ecology (ICIPE) has agreed to host this conference which will be held in the Kenyatta International Conference Centre in Nairobi from 31st August to 5th September, 1986.

The scientific programme will include plenary sessions, symposia, contributed papers and poster sessions covering various areas of entomology, with emphasis on tropical entomology. Sessions on Insect Pathology and Microbial Control are being organized. There will also be exhibitions, social programme and tours.

To receive further information on the Conference and to be placed on the mailing list for the Second Circular, please notify, as soon as possible: Dr. M.F.B. Chaudhury, Secretary General, International Conference on Tropical Entomology, P.O. Box 30772, Nairobi, Kenya.

The compatibility in dates between the Nairobi Conference on Tropical Entomology and Wageningen Colloquium on Invertebrate Pathology have been ensured by leaving a gap of one week in between. Arrangements are being made to organize the Nairobi Pre-Conference Tour Packages including: Safaris to the animal game parks, swimming, fishing and holidaying at the Kenya coastal Indian Ocean warm waters, the African traditional (cultural) dances, visits to international and

national research laboratories in Kenya, etc. Those planning to proceed from Wageningen Meeting will thus have plenty of activities to occupy them before the start of the Nairobi Conference. More details in the next issues of SIP Newsletters.

Wellington A. Oteino Convenor & SIP Regional Correspondent

## SECOND AMERICAN SYMPOSIUM ON ANIMAL, PLANT AND MICROBIAL TOXINS

This symposium will be held May 21, 22 and 23, 1986, at the Sunburst Resort Hotel and Conference Center in Scottsdale, Arizona. It is hosted by the Arizona State University and organized by Professor Allan L. Bieber, Department of Chemistry.

The program consists of two morning sessions with a poster session scheduled between two major lectures. Afternoon sessions will be devoted to contributed papers. At present commitments to present major lectures have been obtained from Drs. A.W. Pappenheimer (diptheria toxin), J.W. Burnett (marine toxins), and D.M. Neville (toxin-antibody conjugates).

Preliminary registrations should be sent to: APM Toxin Symposium, University Conference Services, Arizona State University, Tempe, AZ 85287, U.S.A.

#### WHAT HAPPENED TO DR. BERGOLD?

At the 18th Annual SIP Meeting held in Sault Ste. Marie, Dr. Tom Angus delivered the Founder's Lecture and the honoree was Dr. Gernot Bergold. Tom's lecture aroused a lot of interest and questions about Dr. Bergold; this spring we were on a package tour to Venezuela and spent a day with him. We'll give you a brief update of this dynamic, flamboyant and adventurous person.

The founding fathers of insect virology all had groups of viruses named after them at one point in history. Bergoldiavirus, Birdiavirus, Smithiavirus, Vagoiavirus and Xerosiavirus were abandoned as classifications a long time ago, but these names are familiar to all practitioners and students of insect virology. In 1948, Dr. Gernot Bergold was the only scientist in the world with a working knowledge of the biochemistry of insect viruses when he joined the staff of the infant Insect Pathology Research Institute in Sault Ste. Marie. He worked there for about 10 years, published numerous papers on insect viruses and augmented his international reputation. Aroung 1958, he took a 6 month sabbatical in Venezuela. Dr. Bergold enjoyed the challenge of working in Venezuela and he moved there in 1959 to establish a new virology laboratory at IVIC (Instituto Venezolano de Investigaciones Cientifias); you could call it the Venezuelan National Research Council.

We spent a memorable day at IVIC and Dr. Bergold's home. He is blind in one eye, but otherwise in good health and excellent spirits. Although recently retired from IVIC, he retains a small office in the Virology Laboratory which he designed and which he named after Dr. Beauperthuy, a French scientist, who linked yellow fever with the mosquito Aedes aegypti. The work of this laboratory is devoted to arboviruses and rotoviruses and the production of vaccines. A major outbreak of western equine encephalitis was averted in Venezuela by rapid diagnosis of the virus and vaccine production by Dr. Bergold and his team.

Since Dr. Bergold left Canada, he has only been out of Venezuela once - to a Virology Congress in Moscow with a



Dr. Bergold and Betty outside the laboratory he designed at IVIC.



Dr. Bergold at home with John Cunningham beside his collection of Indian artifacts.

brief stop-over in Austria. That is why nobody in the insect pathology business has seen or heard of him in recent years! We visited his house which he built himself. It is perched on a 1450m high mountain top overlooking Caracas, and we met his wife Anita. His married daughter lives close by, and he has a son living at home. Dr. Bergold is an avid orchid collector and has about 8,000 plants in his greenhouse. He has two species named after him and these specific names will endure longer than Bergoldiavirus! Dr. & Mrs. Bergold also have five German shepherd dogs and two monkeys.

> John & Betty Cunningham Forest Pest Management Institute Sault Ste. Marie, Ontario

#### POSITION AVAILABLE

MICROBIOLOGIST - RESEARCH ASSOCIATE at GS-11 (\$26,381) or GS-12 (\$31,619), grade based on qualifications. THIS POSITION IS NOT TO EXCEED 2 YEARS. One Federal excepted service position with the UNITED STATES DEPARTMENT OF AGRICULTURE, AGRICULTURAL RESEARCH SERVICE in Brownsville, Texas to conduct research on microbial pathogens, with emphasis on the identification, classification, and fermentation of bacterial pathogens. Specifically, incumbent will study the insecticidal toxins produced by various isolates of Bacillus thuringiensis and other Bacilli. Ph.D. or equivalent education/experience is required with strong knowledge of Bacilli and aerobic bacteria and serological and biochemical methods. Candidates must be U.S. Citizens. Equal Opportunity Employer. For application procedures contact: S. L. Conner at (301) 344-1925. Applications in response to this advertisement must be marked S-09.

Mailing Address: W. G. Hart

Subtropical Agricultural Research Lab

509 West 4th Street Weslaco, Texas 78596

#### NEW PUBLICATION

A new journal called Science Software Quarterly is now available for Scientists who use computers. This journal contains articles, features, software listings and reviews. There is a discount of 30% off the regular subscription price of \$45 to members of SIP, so that prices to members would be \$31.50 per year. For more information contact, SSQ, Center for Environmental Studies, Arizona State University, Tempe, AZ 85287, U.S.A. Payments are in U.S. Dollars and foreign subscriptions require an additional \$12 for postage.

#### CODLING MOTH GRANULOSIS VIRUS: NEW ISOLATES

New isolates of codling moth (Cydia pomonella) granulosis virus are required for studies on genetic variability of pathogenicity and field persistence. At present most of our stocks originate from an isolate from a wild codling moth population in Mexico, 1963. We are keen to improve the available gene pool.

Information and, ideally, small samples should be sent to Christopher C. Payne or John Ballard, Glasshouse Crops Research Institute, Littlehampton, West Sussex, BN17 6LP, England.

#### Omission

Apology to Dr. D. Tyrrell for the unintentional omission of his name from the report on the local organizing committee SIP, Sault Ste. Marie meeting, August 4 - 8, 1985, in the last issue of the Newsletter.

Deason's Greetings



For organizational reasons we need the following information. So please, complete this coupon (preferably typewritten), and return it as soon as possible but at the latest before January 15, 1986, to:

CONFERENCE OFFICE ICIP 86 - c/o Mrs A.F.F. de Vries-Eras - Dept. of Virology - Agricultural University - P.O. Box 8045 - 6700 EM WAGENINGEN - The Netherlands - Telephone 08370 - 83090 - Telex 45015 and 45917

I wish to attend ICIP 86. I am member/no member of the Society for Invertebrate Pathology.

Last name

Initials:

Male/female

Organization:

Country:

Address

I intend to bring ... accompanying person(s).

I prefer a single/double room.

I wish to present a paper on the topic of:

Please, indicate the Symposia in which you are most interested :

Delete which is not applicable.