

sip

newsletter

society for invertebrate pathology

Volume 13, Number 2
April 1981

14TH ANNUAL SIP MEETING

The 14th Annual Meeting of the society for Invertebrate Pathology will be held at Bozeman, Montana, USA on August 17-21, 1981. Detailed information on location, transportation, registration, housing, provisional program, and call for papers was given in the February 1981 issue of the SIP Newsletter. Plan to attend, and make your meeting a success. Register early to save on registration fee.

FROM YOUR PRESIDENT

What's new--When reading the SIP Table of organization in the February Newsletter did some of you wonder what the "Culture Collection Committee" might be? No, it is not a group of anthropologically minded members in search of cultures. Rather, under the leadership of Howard Dulmage, this committee will identify collections of cultured living agents that are parasites or pathogens of invertebrates, particularly agents that are or may be used in microbial control. The committee will inform interested persons about the location of various strains of organisms. It will also attempt to safeguard against loss of strains when persons or institutions are no longer able to maintain cultures under their guardianship.

The Founders' Lectureship Committee, chaired by John Briggs, will explore ways of funding and choosing speakers for an annual lecture to be presented in honor of persons who were founders of our discipline. When the financial details are conquered, no doubt the committee will welcome nominations of people to be recognized. Personally, I would like to see Elie Metchnikoff among the first to be honored, because he used invertebrates to elaborate basic principles in pathology applicable to the entire animal kingdom. Speaking of Metchnikoff, it appeals to my sense of the ridiculous that in the 1880's he used invertebrates to demonstrate the universal process of phagocytosis and inflammation, but in the 1980's there are some who resist the idea that inflammation occurs in the backboneless subjects of our research.

Nominations--I hope you will all heed John Harshbarger's call for names of members who could serve SIP in elected positions. I want to extend that invitation to include people who would consider future committee appointments. We need to know who among you are interested in serving our society in this way. Let me know.

Expenses, dues, etc.--It is gratifying that the membership recognized the need for a dues increase. The Council regretted having to recommend the increase, but SIP is as hard hit by inflation as are all its individual members. Your Council, most particularly Treasurer Jim Harper, will continue to ensure that our resources are used frugally.

SIP Newsletter is our most important expenditure. A few hard-pressed members wondered if we couldn't cut costs for it. This subject is one constantly in the minds of the Council, and we welcome suggestions and comments. A suggestion we did receive was to mail the Newsletter in bulk to institutions with several members. After spending three confused hours with the SIP membership list, I concluded that this type of bulk mailing would be impractical at this time. Among other factors, the great majority of our members are singly dispersed over the globe, and the computerized nature of our mailing list precludes alphabetical searching for names that might be grouped for bulk mailing.

I hope you have all remembered to send in your dues. We don't want to lose any of our members. Consider, too, that it costs the Society every time the Treasurer has to send out delinquency notices. We suspect that a few of our delinquent members may be ones whose scientific pursuits and interests have changed, and no longer include invertebrate pathology. In such a case, a member may resign in good standing by informing the Treasurer of his or her decision to do so.

Big Sky Country--I hope all of you who can possibly do so will be coming to the Bozeman meetings. What a setting! Not only will we have the big sky of Montana over us but a very good program is going to take place inside our meeting rooms. Consider: our new Division of Microbial Control will be off to a flying start by sponsoring their own symposium; there's another on B. thuringiensis; we'll have the latest and the best on bee pathology; and (dear to my heart) a symposium on epizootiology of diseases of marine invertebrates. Add to that, contributed paper sessions that traditionally are excellent, and I think you will agree that the meeting is well worth attending on its scientific merit. When you consider the proximity of Bozeman to trout fishing, Yellowstone National Park, and other scenic wonders, appeal of the meeting grows by leaps and bounds.

Phyllis T. Johnson
President,
Society for Invertebrate Pathology

SUGGESTIONS FOR NOMINATIONS INVITED

Suggestions for the offices of Vice President, Secretary, Treasurer and/or Councilor may be sent to any member of the Nominating Committee listed below by July 1. Include rationale.

Dr. Y. Tanada
Department of Entomological Sciences
University of California
Berkeley, California 94720 USA

Dr. M.R. Tripp
Department of Biological Science
University of Delaware
Newark, Delaware 19711 USA

Prof. C. Vago
Stn. de Recherche de Pathologie Comparée
St. Christol-les-Alès 30380
France

Dr. J.C. Harshbarger
NHB, Room W216A
Smithsonian Institution
Washington, D.C. 20560 USA

IUBS COMMISSION ON INVERTEBRATE PATHOLOGY: ACTIVITY 1979-80

The Society for Invertebrate Pathology serves the International Union of Biological Sciences as the Commission on Invertebrate Pathology. In 1979-80 the Society supported partially the organization and distribution of a Directory for Invertebrate Pathology. Publication costs for the Directory were supported by the World Health Organization Special Programme and the Ohio State University. The Society has supported the advertising and distribution of the proceedings of the International Colloquium on Invertebrate Pathology convened in Prague in 1978. The proceedings volume, "Progress in Invertebrate Pathology" was published in 1979.

SIP NEWSLETTER

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

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

Send news items and other contributions to:

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

Members of the Society who have participated in international activities convened for the World Federation of Parasitologists, and the Pacific Science Congress, and the International Congress of Entomology have directed attention to the efforts of the Commission to implement the preservation of type material of microbiological agents affecting invertebrates, in public and private collections internationally. The Executive Committee of the International Union of Biological Sciences has adopted a Resolution supporting the recommendation of the Society and the Commission with respect to the design and use of the label for specimens; and further to conspicuously display a facsimile of the label in the facilities in which specimens are deposited.

One principal difficulty facing all organizations, particularly scientific societies, is the cost of communications, an important element in service to their constituents. Within nations or between nations, the cost of postal service for all classes of post, and modes of communications are increasing at rates exceeding the inflation in costs of the materials distributed by post to members of societies.

The Society, serving as the Commission, will continue to seek support for its activities to stimulate and enhance research in invertebrate pathology and to serve effectively as a focal point for the rapid dissemination of information, and for the affiliation of scientists.

Members of the Society are conspicuous in laboratory and field research on the detection and prevention of diseases of useful invertebrates, and the manipulation of infectious agents for the interruption of the activities of destructive invertebrates. During the past year, a selection of viruses, bacteria, fungi, and protozoa have been prepared for pilot plant production and development of the process to large scale production of the biological agents. This progress in the detection and development of materials to serve as substitutes for, or to complement, conventional chemical pesticides is in laboratories in Asia, Europe, and North America. The result of these actions is a contribution to the international activities on the integration of pest management methods. The contributions have been made for agriculture, forestry, and invertebrates which affect public health. The latter have been in cooperation with the WHO Special Programme for Research and Training in Tropical Diseases.

In 1976 the Society and the Commission provided the organizational opportunity for the planning of a Scientific Working Group for the biological control of vectors in the WHO Special Programme. The Commission through the Society, has identified the community of scientists in invertebrate zoology, parasitology, and microbiology who contribute to the WHO Special Programme.

The diseases of marine invertebrates which are important as protein resources and in the health of food chains are collectively the subject of research by individuals associated with the Commission and the Society.

The president of the Society serves as the Chairman of the Scientific Working Group and Chairman of the Steering Committee for the area of emphasis on the Biological Control of Vectors for World Health Organization Special Programme. Members of the Society serve as consultants to the specialized agencies of the United Nations.

The Society will convene an International Colloquium on Invertebrate Pathology at the University of Sussex in the United Kingdom in 1982.

JOHN D. BRIGGS
Representative to IUBS for the
Society for Invertebrate Pathology

JAROSLAV WEISER
President
Society for Invertebrate Pathology

Revised 10 September 1980

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REGIONAL NEWS - USA
REPORT ON REGIONAL PROJECT S-135

The Technical Committee of Regional Project S-135 on the "Development of Microbial Agents for Use in Integrated Pest Management Systems" met February 24-26, 1981 at the Langford Hotel, Winter Park, Fl. Fifty-six members attended the meeting. During its business meeting the members were informed of the current attitude towards IPM programs in Washington, DC by G. Allen and were encouraged to comment directly to the EPA after publication of the "Guidelines for the Registration of Biorational Pesticides" in the Federal Register. Dr. Harper, chairman of S-135 for 1980-82, reported on the establishment of a Division on Microbial Control within the Society of Invertebrate Pathology and the latest efforts within the Entomological Society of America to establish a new subsection on insect pathology within section C. Dr. J. Hamm reported on the formation of a Southeastern Biological Control Working Group and reviewed the objectives of this organization.

The status of the Agricultural Organism Act was reviewed by C. McCoy and G. Allen. In behalf of S-135 Dr. McCoy indicated that his committee found that the present PDQ regulations governing the importation of exotic organisms into the United States were acceptable at this time. G. Allen and R. Riley agreed to keep S-135 informed as to the status of this act in congress. Plans for a cooperative US - Mexican Workshop on Microbial Control under leadership provided by Mexico and the Insect Pathology Resource Center at Boyce Thompson Institute were announced by D. Roberts. The committee also discussed the possibility of developing regional publications on topics related to microbial control, in particular a publication in cooperation with H. Dulmage of the SIP on "Storage Methods for Insect Pathogens."

Most of the meeting was devoted to subproject reports on research activities accomplished during 1980 and plans for 1981. The six sub-projects are organized according to pathogen groups (bacteria, viruses, fungi, protozoa and nematodes) along with a separate group on application. Most groups reported heightened interest and commendable progress in meeting their objectives within S-135.

The meeting of S-135 will be held in Baton Rouge, LA, February, 1982 with J. Fuxa acting as chairman of the local arrangements committee. In behalf of S-135, Dr. Harper expressed appreciation to C. McCoy who served in this capacity for the meeting in Florida.

W.M. Brooks
Secretary, S-135

WHO ATTENDS SOCIETY BANQUETS: PROFILE OF A
NON-RANDOM SAMPLE OF SIP MEMBERS (1980)

INTRODUCTION

The Society for Invertebrate Pathology is well into its second decade of existence, and has undergone rapid expansion and reasonable maturation during its brief life span. The Society now numbers some 600 members drawn from a variety of subdisciplines in or closely related to invertebrate pathology.

Periodically, it would seem worthwhile to examine the nature of the membership to see if trends exist. Such an examination can be conducted during the annual meeting, recognizing sources of bias in sampling only meeting participants and in sampling at a particular geographic location.

A survey was conducted at the 1980 annual meeting in Seattle--actually after the banquet--to begin establishing a baseline against which future surveys can be evaluated. Despite its statistical unreliability, the 1980 survey disclosed a number of interesting and no doubt important characteristics of the membership (at least of the small and selected sample of the membership in attendance at the 1980 banquet).

RESULTS AND INTERPRETATION

The 11 questions asked are listed below, and a summary of the responses is given under each question:

- (1) Total membership responding: 68
- (2) Sex of respondents:
 - male 52
 - female 16
- (3) Primary research area:
 - insect pathology 50
 - non-insect pathology 18
- (4) Degrees:
 - Ph.D.-Sc.D. 46
 - DVM-MD 1
 - Other 11
- (5) Employment:
 - University 35
 - Government 20
 - Private Industry 4
- (6) Principal area of activity:
 - Administration 6
 - Teaching 9
 - Research 53
- (7) Number of years in invertebrate pathology research:
 - Less than 5 15
 - 5-10 12
 - 11-20 17
 - Over 20 8
- (8) Type of research:
 - basic 10
 - applied 7
 - both 51
- (9) Number of years in the SIP:
 - less than 5 23
 - 5-10 9
 - more than 10 22
- (10) Written at least one review paper: 24
- (11) Written or edited a book: 9

While this survey has some minor and obvious sources of bias, results may be useful in a broad sense. The data shows that in the banquet attendees:

- (1) Men outnumber women by three to one;
- (2) Insect pathologists outnumber the non-insect pathologists by almost three to one;
- (3) Almost 80% have the Ph.D-Sc.D degrees;
- (4) Universities are the principal employers of these respondents;
- (5) Almost 75% are engaged primarily in research;
- (6) About 33% have been involved in invertebrate pathology for more than 10 years, and about 16% for more than 20 years;
- (7) Over 75% characterize their research as a mixture of basic and applied;
- (8) Over 40% are long-time members of SIP (over 10 years);
- (9) About 33% have written at least one review paper; and
- (10) About 13% have written or edited a book.

The survey suggests some of the sources of internal bias in sampling only banquet attendees. The seniority of respondents, and the number of years in SIP give some clues to the selective process of meeting attendance.

Carl J. Sindermann
Seattle, Washington

MICROSPORIDIA DIVISION ORGANIZING WORKSHOP

The Microsporidia Division of the SIP is organizing a workshop on TRANSMISSION of MICROSPORIDIA

during the 14th Annual Meeting of the Society at Bozeman, Montana this summer. As usual, the format will be an informal exchange of ideas. Members are requested to participate, and send their suggestions and contributions to Dr. Albert H. Undeen, Chairperson Microsporidia Division, USDA, SEA, Insects Affecting Man and Animals Laboratory, 1600 SW 23rd Drive, P.O. Box 14565, Gainesville, Florida 32604 USA.

15TH ANNUAL SIP MEETING AND 3RD INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY, BRIGHTON, UK. SEPTEMBER 5-10, 1982

This joint meeting is being organized by the staff of the Insect Pathology group at the Glasshouse Crops Research Institute, pictured in the photograph below. Preliminary details of the meeting were given in the February 1981 issue of the SIP Newsletter. Further information will be given in subsequent issues of the Newsletter as details become available. The majority of conveners have now accepted the task of organizing the planned symposia. Those who know Brighton may be interested to hear that a reception has been arranged for conference delegates in the William IV room of the historic Pavilion.

The 1st Internat. Colloq. on Invertebr. Pathol. was held at Kingston, Ontario, Canada on Aug. 29-Sept. 3, 1976, and the 2nd at Prague, Czechoslovakia on Sept. 11-14, 1978.



Your hosts for the 1982 joint meeting: staff and students of the Insect Pathology Group, the Glasshouse Crops Research Inst., Brighton, UK.
Front row, left to right: Dr. P.J.M. Normansell, Dr. H.D. Burges, Dr. C.C. Payne, Miss G.E. Marsh, Dr. R.A. Hall;
2nd row: Mr. A. West, Mr. A.T. Gillespie, Miss C.F. Williams, Mrs. J.D. Brown, Mr. P.N. Richardson;
3rd row: Mr. G.P. Allaway, Dr. N.E. Crook, Mr. M.G. Richards, Mr. P. Jarrett

BRITISH SOCIETY FOR PARASITOLOGY AUTUMN SYMPOSIUM
PARASITES AS BIOLOGICAL CONTROL AGENTS

FRIDAY OCTOBER 30TH, 1981, MEETING ROOMS,
THE ZOOLOGICAL SOCIETY OF LONDON
REGENTS PARK, LONDON

Program (not quite finalized)

- 10.00 COFFEE
- 10.25 1. Professor M.J. Way (Imperial College, London)
Introductory Remarks
- 10.30 2. Dr. R.M. Anderson (Imperial College, London)
Theoretical Basis of Host Population Control by Parasites
- 11.00 3. Dr. T. Tinsley (NERC Institute of Virology, Oxford)
Viruses
- 11.30 4. Dr. H.D. Burges (Glasshouse Crops Research Institute, Littlehampton)
Bacteria
- 12.00 5. Dr. E.U. Canning (Imperial College, London)
Protozoa
- 12.30 6. Dr. C. Combes (University of Perpignan, France)
Trematodes
- 13.00 LUNCH
- 14.30 7. Professor J. Petersen (University of Nebraska, USA)
Nematodes
- 15.00 8. Dr. P. Ferron (Station de Recherches de Lutte Biologique, La Minière, France)
Fungi
- 15.30 9. Dr. J. Waage and Professor M.P. Hassell (Imperial College, London)
Parasitoids
- 16.00 10. Dr. K. Harrap (NERC Institute of Virology, Oxford)
Ecological Hazards
- 16.30-16.45 Chairman's summing up and general discussion

Registration Fee £6.00, payable at the meeting or in advance to Dr. R. Tinsley, Zoology Department Westfield College, Kidderpore Avenue, Hampstead London NW3 7ST, who will be able to provide further information.

OTHER MEETINGS

THE 38TH ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL MICROBIOLOGY will be held at the Medical College of Virginia in Richmond, VA August 10-14, 1981. Symposia will cover hydrocarbon microbiology, winemaking, protoplasts, actinomycetes, monoclonal antibodies and mycotoxins. For details contact Ms. Ann Kulback, Society for Industrial Microbiology, 1401 Wilson Blvd., Arlington, VA 22209.

IV CONGRESO LATINOAMERICANO DE ENTOMOLOGIA 5 al 10 de Julio 1981 en Maracay. For further

information contact:

Secretario General,
IV Congreso Latinoamericano de Entomología
Instituto de Zoología Agrícola,
Facultad de Agronomía, U.C.V.,
APARTADO 4579 - Código Postal 2101-A,
MARACAY, Edo Aragua, Venezuela, S.A.

THE SIXTH ANNUAL AAAS COLLOQUIUM ON R & D AND PUBLIC POLICY will be held 25-26 June 1981 at the Shoreham Hotel in Washington, DC. For further information contact the AAAS Office of Public Sector Programs, 1776 Massachusetts Ave., N.W., Washington, DC 20036.

THE 73RD ANNUAL MEETING OF THE AMERICAN PHYTO-PATHOLOGICAL SOCIETY will be held 2-6 August 1981 at the New Orleans Hyatt Regency Hotel. For more information and registration materials contact APS headquarters, 3340 Pilot Knob Road, St. Paul, MN 55121 (612) 454-7250.

THE 10TH INTERNATIONAL CONGRESS OF PLANT PROTECTION will be held from 20-25 November 1983 in Brighton, U.K. The theme for the congress will be "Plant Protection for Human Welfare." For more information contact the Chairman, Program Committee, Dr. I. Graham-Bryce, East Malling Research Station, East Malling, Maidstone, Kent. Tel. 0732 (West Malling) 843833; or the congress secretary, Frank Bishop Ltd., 144-150 London Rd., Croydon CR0 2TD., Tel. 01-688-4115.

POSITION AVAILABLE

Assistant Professor, Insect Pathology, with responsibility for research and teaching. Tenure track position. Min. Salary \$20,000. Opportunity for collaboration with scientists in biological control, molecular biology, ultrastructure, and recombinant DNA. Ph.D. in biological science required, with formal training and experience in invertebrate pathology. Submit application, CV, and arrange for academic transcripts and at least 3 letters of recommendation by 30 April 1981 to James L. Nation, Chairman, Search and Screen Committee, Dept. of Entomology and Nematology, 202 Newell Hall, University of Florida, Gainesville 32611.

MEMBERS IN THE NEWS

On the completion of his Ph.D. degree in Insect Pathology at the Imperial College, University of London, England, DR. P. KANAGARATNAM has joined as a Research Officer at the Coconut Research Institute, Lunuwila, Sri Lanka. His thesis research was on the use of Verticillium lecanii and Bacillus thuringiensis for the control of insects, and was carried out under the supervision of Prof. M.J. Way and Dr. H.D. Burges at the Glasshouse Crops Research Institute, Littlehampton, England. Dr. Kanagaratnam was also awarded DIC by the Imperial College in 1980.

G.G. SOARES was selected as a participant in the US-France exchange of Scientists Program administered by the National Science Foundation and Centre National de Recherches de Lutte Biologique. He will be engaged in research with fungal entomopathogens. His address is as follows:

Institut National de la Recherche Agronomique
Station de Recherches de Lutte Biologique
La Minière 78280 Guyancourt, France

PETER JAY STODDARD has accepted a position with the California Department of Food and Agriculture, Division of Pest Management, Environmental Protection and Worker Safety, as a Pest Management Specialist effective June 1, 1981. In addition to developing Integrated Pest Management in California Agriculture he will be looking for ways to encourage microbial control of pests.

DR. KARL MARAMOROSCH, Professor of Microbiology at the Waksman Institute, Rutgers University, New Brunswick, N.J., has been awarded the \$100,000.00 Wolf Foundation Prize in Agriculture for 1980. He was honored for his "pioneering and wide-ranging studies on interactions between insects and disease agents in plants." Karl was one of 10 Wolf Prize winners honored at ceremonies held during a fall 1980 session of the Knesset, Israel's Parliament.



Dr. Karl Maramorosch

Karl was born in Vienna and educated in Poland and the United States. He was a member of the faculty of the Rockefeller Institute for Medical Research, Rockefeller University, in the 1950's. He moved to the Boyce Thompson Institute, Yonkers, New York, in the 1960's and joined the staff of the Waksman Institute of Microbiology in 1974. Besides his research on the interrelationships of plant diseases, their causative agents and insect vectors, Karl has worked on yellow fever and invertebrate viruses, the latter with the idea of developing microbial control of insects.

Karl's work is responsible for decreasing crop losses as well as for increasing the production of food and fiber on a worldwide basis. It was through Karl's international efforts that brought him the acclaim and recognition of the Wolf foundation. In the past 30 years, he has studied coconut palm diseases in the Philippines and tropical diseases in Africa, and worked with plant pathologists in India. The two-time Fulbright Distinguished Senior Professor has lectured, attended and organized conferences or done research in Canada, Europe, the Netherlands, Israel, Southeast Asia and the Pacific.

In addition to the interdisciplinary contributions embracing major areas of disease and its control, Karl has published, or edited, some 25 major works on comparative virology, methods in virology, diseases of tropical legumes and the roles of insects, viruses and other ultramicroscopic disease agents.

The Israeli-based Wolf Foundation was established in 1975 by Dr. Ricardo Lobo Wolf, a German-born chemical engineer and philanthropist, to promote science and art and to grant prizes to individuals for outstanding achievement, as well as to grant scholarships to research scientists.

Dr. Wolf made most of his fortune from the patents he held for improved methods of extracting steel from iron ore. Out of the royalties he created the 15 million dollar Wolf Foundation. Dr. Wolf, now over 90, lives in Cuba.

To add to his long list of honors, Karl has recently been selected as the recipient of this year's Alfred Jurzykowski Foundation Award in the field of biology. This award consists of a citation and \$5,000.00. The Alfred Jurzykowski Awards are presented annually to scholars, writers, and artists of Polish ethnic background for outstanding creative achievement in the sciences.

Karl has been married to his wife, Irene, for 42 years. They have a daughter, Lydia, a television show producer in Los Angeles.

In September 1980 DR. T.A. (TOM) ANGUS retired after more than 30 years with the Canadian Forestry Service in Sault Ste. Marie, Ontario. Born in Toronto, Ontario, Tom served in the Royal Canadian Air Force from 1941 to 1945. Most of this period was spent overseas. Tom's last job in England was as a Base Bombing Leader, 3 Group, Bomber Command. His final comment on this is--"If you must get mixed up in a war, above all strive to survive."



Dr. Tom Angus

Tom received his B.S.A. in bacteriology from the Ontario Agricultural College (now the University of Guelph) in 1949 and his M.S.A. in bacteriology and entomology from the University of Toronto in 1950. He gained his Ph.D., also in bacteriology and entomology, from McGill University in 1955. He came to Sault Ste. Marie in 1948 as an undergraduate student assistant with the newly formed insect pathology group, that later became the Insect Pathology Research Institute (IPRI). Fellow workers were Hugh Thomson, Art Heimpel, Don MacLeod and Ted Bird; all of whom have made their own mark in insect pathology. Tom and Art Heimpel worked on Bacillus thuringiensis var. sotto. This work culminated in 1960 in the first aerial spraying of a B.t. product (Thuricide) against spruce budworm.

In 1960, Art Heimpel moved to head up the USDA insect pathology group in Beltsville, Maryland. Tom's interest shifted at first to work on field studies and then to mode of action of B.t. In 1970 he was appointed Associate Director of the IPRI under the well-known Dr. J.M. Cameron. In 1975, following Dr. Cameron's death, he was appointed Director, IPRI and in 1978, when IPRI and the Chemical Control Research Institute were merged to form the Forest Pest Management Institute, he was named Deputy Director of the new Institute. He was awarded the Queen's Jubilee medal for his services to forest pest

control and is a Fellow of the Entomological Society of Canada.

Although not formally a Steinhaus graduate student, Tom quickly became an honorary member of that group and attended the Seattle meeting that led to the formation of the Society for Invertebrate Pathology. Serving as a member of Council, he later was Vice-President and President succeeding Art Heimpel. He, with Aaron Rosenfield and Peter Faulkner, organized the Kingston meetings of the Society in 1976.

Away from the desk/bench Tom has had many interests. He was, for 13 years, (beginning as a Founding Governor) on the Board of Sault College of Applied Arts and Technology retiring as Chairman of the Board. In 1960, after three years on the Sault Ste. Marie Planning Board, he was elected an Alderman of the City of Sault Ste. Marie. He still holds that office. Tom is also a long-time member of the Algoma Health Unit.

Jane Angus (also a Guelph graduate) is very active in volunteer activities and has been the recipient of the Distinguished Service Award of the Canadian Red Cross and the Medal of Merit of the City of Sault Ste. Marie for her work. Their two daughters, Beth and Jeanie, live in London, Ontario. Tom hopes to attend the Bozeman meetings as an interested but non-involved "verandah" member.

In October, 1980, DR. T.J. (TERRY) ENNIS was appointed Program Manager, Control Products Research and Development at the Forest Pest Management Institute, Canadian Forestry Service, Sault Ste. Marie, Ontario. Dr. Ennis succeeded Dr. T.A. (Tom) Angus who is widely known throughout the Society of Invertebrate Pathology and who retired from the Public Service in September, 1980 after a long and brilliant career. Dr. Ennis, who holds B.Sc., M.Sc., and Ph.D. degrees in Cytology and Genetics from the University of Toronto, began his research career with the Insect Pathology Research Institute (a predecessor of the Forest Pest Management Institute). His early research under the late S.G. Smith was concerned with the cytogenetics of *Pissodes* species and other coleopterans. Before moving to research management ranks, he headed up the Institutes's Genetics Section and was involved in studies investigating the potential of genetic manipulation of reproduction in the management of forest insect pests.

In his management role, Dr. Ennis will be responsible for programs in bacterial, fungal, protozoan and viral pathogens, insect pheromones, insect growth regulators and for complementary research in cell biology, tissue culture and

serology. He brings a wealth of experience and capability to his new position and there is no doubt that his presence will have a salutary effect not only on the projects he manages but on the entire program of the Institute.

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INSECT PATHOLOGY PROGRAM AT THE FOREST PEST MANAGEMENT INSTITUTE SAULT STE. MARIE, ONTARIO

For many years, Canadian research on insect pathogens has been associated with the Insect Pathology Research Institute (IPRI) in Sault Ste. Marie, Ontario. Names like Angus, Bird, Cameron and MacLeod became almost synonymous with pioneering research into the development of entomopathogenic bacteria, viruses and fungi as insect pest control agents. From an original research base concerned almost exclusively with pathogens, interest expanded in the 1960's and early 70's to include microsporidia, pheromones, insect growth regulators and genetics. With increased activity in complementary research into first serology, then tissue culture and cell biology, as well as an ever expanding support base of insect rearing services and greenhouse facilities, the mid 70's saw the development of IPRI as an important center for the study of a variety of biological control methods.

Recent visitors and correspondents have undoubtedly noted that the name IPRI has disappeared from sight, to be replaced by the Forest Pest Management Institute, or FPMI. The change has been a logical and evolutionary one. Among the National Institute Program of the Canadian Forestry Service, the Chemical Control Research Institute (CCRI) in Ottawa had been concerned with the toxicological screening of candidate pest control products, primarily chemical insecticides, as well as development of application technology, determining efficacy in the field, and assessing the environmental impact of pest control operations. There was obvious overlap in interest between the two Institutes and efforts of one were complementary to the other. This had been recognized for some time, and in 1977 the unavoidable logic of union of the two Institutes resulted in the move of CCRI personnel to Sault Ste. Marie and the establishment of FPMI.

Under the direction of George Green, this Institute carries out research in two general areas; the development of biological and physiological control methods, with Terry Ennis as Program Manager, and the application technology and environmental impact studies overseen by Jack Armstrong. It was with the first program that were associated names familiar to SIP members--Tom Angus, Ted Bird and Don MacLeod--all of whom have retired within the past year. Terry Ennis had previously conducted genetic research on forest insects, but has now moved to Program Manager. Paul Fast continues his studies on toxic component and mode of action of *B.t.* David Tyrell has assumed leadership of the Mycology project; he continues his investigation of the biology of *Entomophthora* and other fungi while we proceed towards recruitment of a scientific professional to initiate investigation of the pathology and epizootiology of entomogenous fungi. The potential of microsporidia, particularly *Nosema* and *Pleistophora*, is being developed by Gary Wilson. John Cunningham leads the Virology project; John continues to develop viruses for



Dr. Terry Ennis

management of insect pests, while Basil Arif is concerned with biochemical and biophysical characteristics of viruses. Bill Kaupp, recently returned from D. Phil. studies at Oxford, will initiate epizootiological studies of selected viruses.

Among physiological approaches, Gary Grant studies lepidopteran pheromones and their use in insect pest management, and Arthur Retnakaran is investigating the potential of interference with hormonal processes, including juvenile hormone analogues and Insect Growth Regulators.

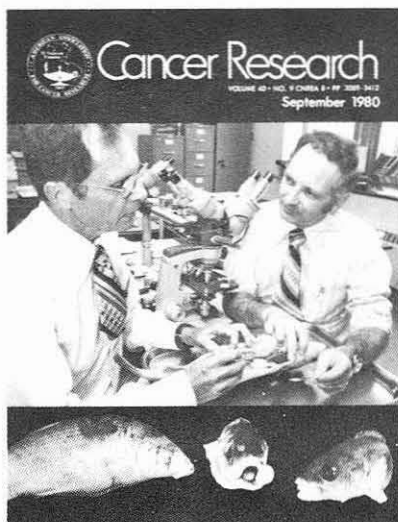
In Jack Armstrong's program, Ozzie Morris continues his development of Bio Control Strategies, particularly with B.t. Other projects include: pesticide dispersal systems, Randy Randall; formulations, Alam Sundaram; toxicology, Chandra Nigan; field efficacy, Leo Cadogan; environmental impact, Peter Kingsbury; chemical accountability, Somu Sundaram; herbicides in forestry use, Raj Prasad; and information/technology transfer, Craig Edwards. We are also involved in recruiting a field herbicide specialist, a physicist to study spray cloud behaviour, an entomologist to handle high value stand insect problems, and a systems analyst.

Jean Percy is our cell biologist, carrying out ultrastructural studies as well as cooperating with other projects. Janina Krywienzyk provides serological expertise, primarily to the virology and B.t. projects. Sardar Sohi of course continues originating a large number of insect cell lines used cooperatively by other projects as well as developing methods for multiplication of pathogens *in vitro*. Dail Grisdale supervises our insect production facility that produces upwards of 6 million insects a year. John Burk provides disease diagnosis capability, while John McPhee supervises virus production. Don Buckley's greenhouse facilities produce on a year round basis the food plants required for insect rearing and oviposition, as well as single tree efficacy trials.

REGISTRY OF TUMOURS IN LOWER ANIMALS

The Registry of Tumours in Lower Animals was established in 1965 at the Smithsonian Institution in Washington, D.C. under contract with the National Cancer Institute.

Dr. John C. Harshbarger, Jr., has been the director of the Registry since 1967, and Dr. Clyde J. Dawe, Laboratory of Pathology, National Cancer Institute, has been the National Cancer Institute representative. Harshbarger was born in 1936 in Virginia and received his doctorate in entomology from



Rutgers University in 1962. Dawe was born in 1921 in Pennsylvania and received his M.D. from Johns Hopkins University School of Medicine in 1945.

The purpose of the Registry is to facilitate comparative studies of tumorigenesis and related disorders in invertebrate and poikilothermic vertebrate animals. Comparative pathobiology has been an important source of new observations and concepts since the days of Aristotle and performs a similar function in modern oncology. While neoplasms of mammals and birds have long been under intensive study, those of reptiles, amphibians, fishes, and the invertebrate phyla have only recently come under more careful scrutiny. The National Cancer Institute Monograph No. 31 (C.J. Dawe and J.C. Harshbarger (eds.), 1969) is a collection of studies in comparative oncology focused upon these "lower" animals, signaling a resurgence of interest in this area. A series of reports on tumours in fishes, for example, has provided instructive leads concerning the frequent occurrence of particular neoplasms in particular species in particular habitats. Such information is in some instances a mirror of the contamination of aquatic environments with oncogenic agents. In others, it reflects the proneness of certain species to develop certain neoplasms or an interaction between genetic and environmental factors.

Pictured are Drs. Dawe (left) and Harshbarger (right, examining an Atlantic salmon (*Salmo salar*) with multiple smooth muscle cell tumours of the swim bladder (I. McKnight, *Aquaculture*, 12:55-60, 1978) and three fish with tumours of the head.

This picture and the write-up appeared as cover story in *Cancer Research* (Vol. 40, No. 9, September 1980) and have been reproduced here with the permission of the publishers. Dr. Harshbarger is a founding member of the SIP and has served the Society as Editor of the SIP Newsletter and Secretary. Currently he is Chairperson of the Nominating Committee. Dr. Dawe is a charter member of the SIP.

BIBLIOGRAPHY OF THE NATURAL HISTORY OF NEWFOUNDLAND AND LABRADOR BY M. LAIRD, MEMORIAL UNIV. Academic Press, 1980, LXXII + 378 pp. \$57.50

This book makes available a vast amount of biological information much of which has been buried, until now, in books whose titles do not reveal that they contain material of natural history interest. In such cases quite extensive annotations are supplied. The introductory essay is concerned with particular aspects of the biology of Canada's Province of Newfoundland and Labrador. For example, it considers the magnitude of the summer pest problem due to Labrador's mosquitoes, blackflies and other biting Diptera, the history of the Newfoundland dog and the suggestion that a now extinct sirenian may have accounted for various "mermaid" records from coastal waters around the Province. The bibliography includes previously unpublished photographs and numerous illustrations from out-of-the-way early maps and books.

Dr. Laird is a charter member of the SIP, and was Chairperson of the Working Group on the Safety of Microorganisms for several years.