

sip

newsletter

society for invertebrate pathology

Volume VI, Number 1
January 1974

VIIITH ANNUAL MEETING OF THE SOCIETY FOR INVERTEBRATE PATHOLOGY

June 16-21, 1974
Tempe, Arizona

The VIIth Annual Meeting of the Society for Invertebrate Pathology, in conjunction with the 25th Annual AIBS Meetings, will be held June 16-21 in Tempe, Arizona.

A program on comparative and invertebrate pathology is being arranged for the 1974 meeting of the Society for Invertebrate Pathology. The meetings will be held on the campus of Arizona State University, which has an enrollment of approximately 28,000 students. The Co-chairmen of the meeting wish to extend a welcome invitation to all scientists and interested persons to participate. Symposia and submitted papers concerning various research areas and problems of invertebrate pathology will be presented. The program will satisfy the needs of individual scientists conducting research on invertebrate pathology such as the previous meetings have.

A symposium on entomogenous virus specificity will be held hopefully to give researchers, students and administrators an overview of various problems involved with the use of entomogenous viruses. Specifically the symposium will deal with the questions related to the use of highly specific or relatively nonspecific viral pathogens for microbial control. The status and problems involved in *in vivo* and *in vitro* virus production, application and formulation technology and problems, legal aspects of registration and patent rights and safety criteria for other animals will also be discussed. It is desired by the Co-chairmen that active discussion by those in attendance will aid us as scientists to assimilate research information on the status of the "art" as well as potential or actual problem areas. Hopefully, the proceedings of these symposia will be published by the Society for ready reference by individuals currently interested in the practical use of entomogenous viruses. Other symposia or workshops are planned and include invertebrate tissue culture, pathogen production using invertebrate tissue cultures, microsporidia, safety working group on pathogens of invertebrates, virus characterization, and non-infectious diseases.

Pathology in invertebrate animals other than insects, for example marine invertebrates, will also be included in the meeting. Although emphasis on invertebrates is desired, any pertinent comparative information relating to vertebrates, including human, will be welcome. Proposed key areas are: spontaneous disease, experimental studies, pollution, aqua-culture, animal models of human disease, hematology, and biological



Arizona State University campus, Tempe, Arizona, USA

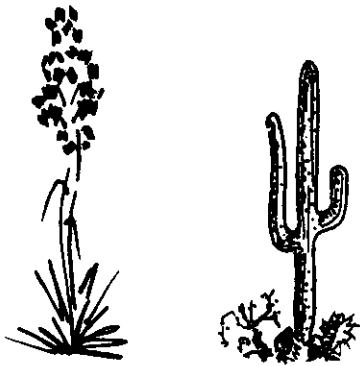
control of disease. Immunology sessions are already planned. The symposium will try to elucidate areas where further research will be most valuable in helping solve some of today's serious socio-environmental problems, as well as areas of basic research that may lead to the solution of problems as yet unforeseen. Finally, the subject of education may be considered, as relatively little attention has been paid to date to such important matters as the formulation of undergraduate or graduate curricula in invertebrate pathology.

Tours of facilities and areas of the southwest are being planned by AIBS. In addition, our program committee will arrange for visits to facilities in the local area that may be of interest.

Abstracts of papers must be submitted no later than March 31, 1974. A total of 20 minutes per paper and a discussion is being planned for each participant.

Submitted papers will be placed in sessions covering the appropriate subject matter. However, if submittals are not adequate for a separate session the Co-chairman will place the papers in the program where they see fit.

Continued on page 2



A new idea for your family vacation--

SEE THE SOUTHWEST IN 'SEVENTY FOUR!

housing office will try to place as many of you together as possible. You may send such housing applications directly to the housing office, rather than to me as suggested in the circular which you should have received.

Remember--this will be an important meeting with most areas of interest represented in seminars, workshops, and contributed papers. Try to attend, and enjoy a visit to the beautiful desert Southwest!

Elizabeth W. Davidson
Local Arrangements
Division of Agriculture
Arizona State University
Tempe, Arizona 85281



HOUSING

SIP members outside the U.S. who will be attending the VIIth Annual Meeting may get complete information on housing by return air mail by writing to: Ann F. Kulback, AIBS, 3900 Wisconsin Avenue, N.W., Washington, D.C., 20016, USA.

MEMBERSHIP DUES AND JOURNAL SUBSCRIPTIONS

The Treasurer has mailed out the notices for membership dues and subscriptions for 1974 during December 1973 and January 1974. Since some of the notices may be lost during the Christmas mail rush, anyone who does not receive his notice should contact the Treasurer.

The dues and JIP subscriptions for 1974 are as follows:

1974 Membership Dues

Regular Member, outside of U.S.	\$4.00
Regular U.S. Member, including AIBS	5.00
Student Member	2.00
Division of Microsporida	1.00

JIP Subscriptions

1974 (Vols. 23, 24) in USA and Canada	\$28.00
1974 (Vols. 23, 24) outside USA and Canada	30.40

Y. Tanada, Treasurer
University of California
333 Hilgard Hall
Berkeley, California 94720 USA

VIIITH ANNUAL MEETING
Continued from Page 1

If dealing with insects, titles and abstracts should be sent to: Dr. Patrick V. Vail, USDA, ARS, Western Cotton Research Laboratory, 4135 E. Broadway, Phoenix, Arizona, 85040, USA. If dealing with other invertebrates, the information should be sent to Dr. Albert C. Smith, Hawaii Biomarine, 4300 Wai'ale'ale Ave., No. A102, Honolulu, Hawaii, 96816, USA.

Any questions on arrangements, housing, etc. should be forwarded to Dr. Elizabeth W. Davidson, Division of Agriculture, Arizona State University, Tempe, Arizona, 85281, USA.

The VIIth Annual Meeting of SIP will be held in conjunction with the American Institute of Biological Sciences (AIBS) at Arizona State University, Tempe, Arizona, June 16-21, 1974. Tempe is a Phoenix suburb, and therefore is served by a wide variety of public transportation. Major airlines serving Phoenix are: TWA (non-stop to/from New York), American (many non-stop flights), Aeromexico, Continental, Delta, Frontier, Hughes Airwest, and Western. Amtrak rail system also serves the city, as does Greyhound and Continental Trailways bus lines.

AIBS has planned this meeting so that you may enjoy a Southwestern vacation with your family. Phoenix lies in the Lower Sonoran desert, surrounded by beautiful mountains. The temperature may be expected to exceed 100° daily in June, but the relative humidity rarely goes above 30%, so the temperature is not oppressive. Of course, all buildings and vehicles are air conditioned. Camping in the valley in the summer is not recommended, however, and AIBS has therefore arranged for inexpensive dormitory housing, catering to spouses and children. Information on interesting things for your family to do in and around Phoenix will appear in future Newsletters.

You may consider including in your southwestern vacation visits to: the University of Arizona and the USDA Bee Laboratory (the world's largest) in Tucson; Old Tucson and Tombstone of movie fame; the Grand Canyon and Mogollon Rim area; Carlsbad Caverns National Park in New Mexico; Big Bend National Park in Texas; Mexico and Baja California; Organpipe Cactus and Joshua Tree National Monuments; and California. For visitors from outside the U.S., we will be able to supply information on transportation to these and other points of interest. Please write directly to me if you wish such information.

During the meetings, we hope you will enjoy our banquet and daily mixers. An SIP field trip is planned to the USDA Western Cotton Research Laboratory. Watch Bioscience for announcements of desert field trips sponsored by other member organizations.

It was suggested at the Oxford meetings that the Society live together in Tempe. Unfortunately, because of the need to house men, women, and family groups on separate floors, this will not be possible. However, if you are a male attending alone, write "Society for Invertebrate Pathology" prominently on your housing application and mail early. The

NOMINEES FOR COUNCIL

PRESIDENT: Dr. A. M. Heimpel

VICE PRESIDENT: Dr. T. A. Angus
Dr. V. Sprague

SECRETARY: Dr. G. E. Cantwell
Dr. J. D. Harshbarger
Dr. G. B. Pauley

TREASURER: Dr. S. Y. Feng
Dr. A. Rosenfield
Dr. G. R. Stairs

TRUSTEES: Dr. B. Murpin
Dr. R. Ishihara
Dr. J. R. Norris
Dr. J. E. Stewart
Dr. L. P. S. van der Geest
Dr. J. Weiser

BIOGRAPHIES

President

Arthur M. Heimpel

B.A., M.A., Ph.D. (Queens University, Kingston). Born, 1923. Chief, Insect Pathology Laboratory Plant Protection Institute, ARS, USDA, Beltsville, Maryland, U.S.A. Research Officer, Insect Pathology Institute, Canadian Department of Forestry, Sault Ste. Marie, Ontario, Canada (1949-61). Member, International Scientific Committee for Colloquia on Insect Pathology, 1962; Technical Adviser to the Food and Drug Administration, U.S.A., on Virus Safety Protocol Committee, 1969; Adviser to the World Health Organization Pesticide Committee, 1963-present; Chairman, International Virus Standardization Committee, 1966-67; Technical Adviser to the USA North Central Region 72 Committee on funds for land-grant college research, 1963-present. Member, Editorial Board, Journal of Invertebrate Pathology, 1961-63; Founding Secretary-Treasurer, Trustee, 1969-71, Vice President, Society for Invertebrate Pathology, 1972-present. Interests: insect pathology and microbial control generally; specifically, formulation of viruses for control and safety of microbial agents. Specific objectives: computerization of international sources of literature on insect pathology and microbial control; international banks of microorganisms used or potentially useful for insect control.

Vice President

Thomas A. Angus

B.S., M.S., Ph.D. (McGill University, 1955). Born, 1915. Associate Director, Insect Pathology Research Institute, Canadian Forestry Service, Sault Ste. Marie, Ontario, Canada. With IPRI since 1948 as Research Scientist. Has served on various committees of Canadian scientific societies in fields of entomology and microbiology. Member SIP Founding Committee, Editorial Board, and Scientific Committee of the Colloquium on Insect Pathology and Biological Control. Interests: use of microbial insecticides in control of forest insects. Specific objectives: to continue the good work of earlier executives.

Victor Sprague

B.Ed., M.S., Ph.D. (University of Illinois). Born, 1908. Research Professor, University of Maryland, Natural Resources Institute, Chesapeake Biological Laboratory, Solomons, Maryland, U.S.A. Instructor, Marshall College, 1940-42; Instructor, Louisiana State University, 1946-48; Instructor, Loyola University, Chicago, 1948-50; various commercial positions. Member, Editorial Board, J. Protozool., 1973. Chairman, Division on Microsporida, SIP, 1972. Member, Editorial Board, JIP, 1966-69. Member, Organizing Committee, SIP, 1967; Member, SIP Council, 1967-73; SIP Representative to the AIBS Governing Board, 1968-69; Chairman, Organizational Committee, Division of Microsporida, SIP, 1969-70. Candidate for Vice President, 1970. Interests: mainly the Microsporida, any and all aspects, but especially taxonomy. Specific objectives: continue the established policy of fostering true internationalism in the Society; encourage more emphasis on informal "workshop" features in the programs.

Secretary

George E. Cantwell

B.S., B.A., Ph.D., (University of Maryland, 1960). Born, 1929. Research Leader, Insect Pathology Laboratory, Plant Protection Institute, ARS, USDA, Beltsville, Maryland, U.S.A. Director, Registry of Tumors in Lower Animals, Smithsonian Institute, Washington, D.C., 1966-67; Lecturer, Prince George's Comm. College, Largo, Maryland, 1961-present; Entomologist, USAR, Surgeon General's Office, Washington, 1955-present. Past Chairman, Membership Committee, past Treasurer, Entomological Society, Washington; elected to Sigma Xi; Member, Program Committee, Symposium on Neoplasms and Related Disorders of Invertebrate and Lower Vertebrate animals, 1968; Consultant, Gypsy Moth Conference, New York and New Haven; Member, Advisory Panel, Registry of Tumors in Lower Animals, 1967-70. Founding Member, SIP; Chairman, Publications Committee, IVth International Colloquium on Insect Pathology. Interests: diseases of the honeybee.

John C. Harshbarger

B.A., M.S., Ph.D. (Rutgers). Born, 1936. Director, Registry of Tumors in Lower Animals, U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. National Science Foundation Postdoctoral Associateship in Insect Pathology, U.S.D.A., Beltsville, Md., 1962-64; Assistant Research Pathologist, University of California, Irvine, 1964-67. Co-chairman, Symposium on Neoplasia of Invertebrate and Primitive Vertebrate Animals, 1968; Co-editor, "Neoplasm and Related Disorders of Invertebrate and Lower Vertebrate Animals," National Cancer Institute Monograph 31, 772 pp. (Proceedings of 1968 Symposium) 1969; Member, Organizing Committee for the IVth International Colloquium on Insect Pathology, 1970; Secretary, Committee on Comparative Oncology of the Commission on Epidemiology of the International Union against Cancer, 1970-present; Present Member, Interagency Collaborative

Continued on page 4

BIOGRAPHIES

(continued from page 3)

Group on Environmental Carcinogenesis, 1973-present; Founding Member, SIP; Editor, SIP Newsletter, 1969-70. Interests: neoplasms and related diseases in invertebrate and poikilothermic vertebrate animals; immunity in invertebrates; biological control. Specific objectives: I agree with Dr. Briggs and others that a regularly maintained computerized data bank on invertebrate diseases would be very useful. I have been successfully using a system for tumors in lower animals for four years, which I believe could be readily adaptable to all diseases. The SIP should consider sponsoring this as a valuable and profitable enterprise.

Gilbert B. Pauley

B.S., M.S., Ph.D. (Berkeley, California, 1971). Born, 1939. Immunologist, Eastern Fish Disease Laboratory, Kearneysville, W. Va., U.S.A.; Research Scientist, Battelle-Northwest, Richland, Washington, 1965-68; Research Assistant, University of California, Irvine, 1968-71; Fishery Biologist, National Marine Fisheries Service, Oxford, Maryland, 1971-72; Co-Editor, "Diseases of Crustaceans," in preparation; Symposium Co-Chairman, AIBS Meeting on Diseases of Crustaceans, 1973. Interests: Immune mechanisms of fish and invertebrates, pathology of invertebrates. Specific objectives: More special symposia on invertebrate pathology with subsequent, rapid publication of the entire proceedings; some type of student award for outstanding research.

Treasurer

Sung Y. Feng

B.S., M.A., Ph.D. (Rutgers, 1962). Born, 1929. Associate Professor of Biology and Assistant Director Marine Research Laboratory, Noank, Connecticut, U.S.A. Research Associate, Rutgers University, 1962-66; Assistant Professor of Biology, University of Connecticut, 1966-68. Secretary/Treasurer, New England Estuarine Research Society, Estuarine Research Foundation, 1972-74; Member, Editorial Board, Journal of Invertebrate Pathology, 1969-present; Member, Nominations Committee, two terms. Interests: Pathology and immunology of marine molluscs.

Aaron N. M. I. Rosenfield

B.S., M.S., Ph.D. (University of Texas, 1960). Born, 1924. Director, Pathobiology investigations, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fishery Service, Oxford, Maryland, U.S.A. Project Leader, U.S. Fish and Wildlife Service, Maine, 1960-62; Program Leader, U.S. Fish and Wildlife Service, Oxford, 1962-69; Assistant Laboratory Director, National Oceanic and Atmospheric Administration, Oxford, 1969-71; Associate Faculty, Johns Hopkins University, School of Public Health and Hygiene, Department of Pathobiology, Baltimore, Maryland; Research Associate, Department of Biology, Georgetown University, Washington, D.C. Editorial Board, National Shellfisheries Association; Member, Organizational Committee to establish the Society for Invertebrate Pathology. Interests: Diseases of marine animals; in vitro cell and organ culture of poikilotherms; fisheries management and mariculture. Specific objectives: Promote a more truly international, apolitical society; encourage greater membership by investigators from countries only marginally represented or not currently

represented in the Society--particularly from those countries in the Orient, Middle East, South American, and Southeast Asia.

Gordon R. Stairs

B.Sc., M.Sc., Ph.D. (Mcgill University, 1963). Born, 1932. Professor of Insect Pathology, Department of Entomology, The Ohio State University, Columbus, Ohio, U.S.A. Canada-Forestry, Student Research Assistant, Fredericton, New Brunswick, 1950-53; Canada-Forestry, Research Officer, Sault Ste. Marie, Ontario, 1954-58; Canada-Environment, Insect Pathologist, Sault Ste. Marie, Ontario, 1959-65. Member, Mosquito Control Association; Co-organizer, Colloquium on "Microbial Control of Insect Pests," Fukuoka, Japan, 1967; Founding member and member, Membership Committee, S.I.P. Interests: Use of insect viruses in the control of insects; viral infection processes and the genetics of host interactions; interactions of viruses and chemical insecticides. Specific objectives: We should maintain and increase our "esprit de corp" and one way of insuring this is to do an efficient job of handling the payment of dues subscriptions, etc. I would try to accomplish this. Maximum use of computer assistance should be made in handling the affairs of the Society.

Trustees

Bernard Hurpin

Ph.D. (Faculté des Sciences, Paris). Born, 1924. Director, Station de Lutte Biologique, I.N.R.A., La Minière, France. Formerly Director of Research Station de Lutte Biologique, I.N.R.A. Editor, Entomophage, 1969-present; Chairman, Membership Committee S.I.P., 1970-72; Founding Member, S.I.P. Interests: Pathology of insects and microbial control.

Ren Ishihara

Ph.D. (University of Tokyo, 1958). Born, 1928. Assistant Professor, Lecturer, Department of Agriculture and Veterinary Sciences, Nihon University, Tokyo, Japan. Technical Officer, Sericultural Experiment Station, Tokyo, 1958-64; Research Scientist, Insect Pathology Research Institute, Sault Ste. Marie, 1964-68. Editorial Staff Member, J. Sericultural Science, Japan. Interests: Biology of Microsporida. Specific objectives: Encouragement of activities of local bodies at various levels; survey of training system and curriculum of invertebrate pathology.

John J. Norris

B.Sc., Ph.D. (University of Leeds, 1957). Born, 1932. Director, Meat Research Institute, Langford England. Touring Agricultural Fellow, Denmark, 1957; Lecturer, Department of Bacteriology, University of Glasgow, 1957-63; Scientist, Shell Research Ltd., 1963-68; Assistant Director, Milstead Laboratory for Chemical Enzymology, Shell Research Ltd., 1968-70; Director, Borden Microbiological Laboratory, Shell Research Ltd., 1970-73. Currently: Secretary, Society for Applied Bacteriology; Editor, Methods in Microbiology, Volumes 1-8, Academic Press; Visiting Professorships, Universities of London and Kent; Secretary, IAMS Subcommittee on genus Bacillus. Interests: General interest in microbiology with a particular interest in spore-forming bacteria; nature of Bacillus thuringiensis toxins. Until recently I directed a project on the

Continued on page 5

BIOGRAPHIES

(continued from page 4)

production of insect viruses by large-scale tissue culture technology and will maintain my interests in the field of insect pathology in addition to having some influence at the Government Research Council level. Specific objectives: I would like to see the Society develop its contacts with the industrial groups who are facing the problems of economic production and use of biological control agents, since I feel that a valuable improvement could take place in the form of a two-way flow of information and advice. The Society has an important role to play in relation to toxicological evaluation and approval of products. Its members are in a unique position both to provide advice and generate experimental data in relation to these questions, and I would like to see the Society develop effective machinery to ensure that it makes maximal contribution.

James E. Stewart

B.S.A., M.S.A., Ph.D. (State University of Iowa, 1958). Born, 1928. Program Manager, Aquaculture Group, Halifax Laboratory, Fisheries and Marine Service, Canada Department of the Environment, Halifax, Canada. Senior Scientist Associate, 1958-68, Assistant Director, 1968-69; Acting Director, 1969-71, Halifax Laboratory. Canadian Society of Microbiologists, National Councillor, 1969-71, Chapter President, 2 years; Nova Scotian Institute of Science, Treasurer, 2 years, Council Member, 2 years; participant in United States Academy of Science Workshop on Inputs, Fates and Effects of Petroleum in the Marine Environment. Founding member, S.I.P. Interests: Diseases of aquatic species; defense mechanisms in marine invertebrates specifically marine Crustaceans, notably the lobster; microbial degradation of hydrocarbons. Specific objectives: I would like to see emphasis placed on a greater interaction between people studying insects and those working on invertebrates other than insects. I believe this could be achieved to a considerable extent through more sessions focused on topics which cross discipline and species lines. A few of the kinds of topics I have in mind are: factors controlling the specificity of pathogens, defense mechanisms in invertebrates, phagocytosis, immunity in invertebrates, and biochemistry-physiology of host-pathogen interactions. I would also like to see the numbers of academic institutions offering training in depth in the general area of invertebrate pathology (insect and other invertebrates) extended significantly. On this point I believe the Society could have considerable impact. It could be active not only in fostering winter programs, but may have greater success in the development of summer sessions. The summer sessions could have the added advantage of being available for those already in the field of invertebrate pathology who wish to gain experience and training in specific areas.

Leonardus P. S. van der Geest

Ph.D. (University of California, Berkeley, 1966). Born, 1937. Scientist, Laboratory of Experimental Entomology, University of Amsterdam, The Netherlands. Research Assistant, Department of Entomology and Parasitology, University of California, Berkeley, 1962-66; Research Scientist, National Council for Agriculture Research T.N.O., The Netherlands. Secretary, Netherlands Entomological Society, Applied Entomology Section. Editor, S.I.P. Newsletter, 1970-72. Interests: Physiopathology of virus diseases in insects; application of *Bacillus thuringiensis* and *B. popilliae* preparations; iso-enzyme studies in tsetse flies. Specific objectives: I would like to foster research in invertebrate pathology, and in particular, in applied insect pathology in developing countries. In many developing countries

possibilities exist for microbial control, where chemicals with long-lasting residues are still being used. I also feel that close contacts need to be sought between our Society and societies working in adjacent fields, such as virology, bacteriology and protozoology. This could result in a closer cooperation with specialists in these fields.

Jaroslav Weiser

Ph.D. (Charles University, 1946), D.Sc. (Czechoslovak Academy of Sciences, 1959). Born, 1920. Head, Department of Insect Pathology, Institute of Entomology, Academy of Sciences, Prague, Czechoslovakia. Assistant Professor, Parasitology, 1947-51; Head, Department of Parasitology, Academy of Sciences, Prague, 1951-54; Visiting Professor in Pestology, Simon Fraser University, Canada, 1969-70. Member, Czechoslovak Academy of Sciences, 1968-present; Consultant for problems of biological control for the World Health Organization Vector Control; Member, Editorial Board, *Journal of Invertebrate Pathology*, 1961-63. Interests: Insect pathology, protozoan infections, parasitology. Specific objectives: Determination and collections of types of all kinds of insect pathogens; symposia on special topics in insect pathology producing progress in evaluation of some groups of pathogens; e.g., chytrids, entomophthorous fungi, etc.

SEE ENCLOSED BALLOT

ANNOUNCEMENTS

I am attempting to collate data on agents which are known to be pathogenic in molluscs. It is not my aim to list the numerous trematode parasites for which molluscs are intermediate hosts, but rather to collect data on protozoan, bacterial, microsporidan, myxosporidan and viral agents which have either been shown to be or are considered by individual NEWSLETTER readers to be pathogenic for molluscs. Please, if you are aware of any such agents, send me the information so that a beginning can be made in assembling comparative data on molluscan pathology.

Christopher J. Bayne
Department of Zoology
Oregon State University
Corvallis, Oregon 97331 USA

A list of microorganisms associated with insects which have been isolated, studied and stored is available. Prepared by W. A. Smirnoff and A. Juneau, the article, "Quinze années de recherches sur les micro-organismes des insectes forestiers de la Province de Québec (1957-1972)" appeared in *Ann. Soc. Ent.*, Vol. 18, No. 3, pp. 147-181. It contains "records from 15 years' research carried out on nature and role of micro-organisms as means of control of forest insects ... summarized in a series of lists referring to 64 pathogenic micro-organisms (bacteria, fungi, flagellates, microsporida, and viruses)... more than one hundred host insects are given with references." Reprints can be obtained from:

Dr. W. A. Smirnoff
Environment Canada
Environmental Management
Department of Forestry
Box 35 Sillery
Quebec, Canada

OCCLUSION BODY: AN ALTERNATIVE TERM FOR "INCLUSION BODY" AND SIMILAR TERMS USED IN THE INVERTEBRATE VIRUS LITERATURE

Invertebrate viruses can be divided among two broad non-taxonomic categories, those in which the virions are embedded in proteinaceous crystals most commonly known as "inclusion bodies," and those which are not. R. H. Goodwin (*J. Invertebr. Pathol.* 12, 479-480, 1968) has discussed the discrepancy which exists in the definition of the term "inclusion body" as used by animal and plant virologists, and by insect virologists. He observed that the former used inclusion body "to refer generally to any matrix or array of virus particles, evidence of nuclear damage by viruses, fixation artifacts, or any abnormal proteinaceous body produced in a virus infected cell." Although insect virologists also use "inclusion body" in this manner, they use the term primarily for referring to the peculiar protein crystals in which the viruses causing granulosis, polyhedrosis, and entomopoxvirus diseases are embedded. Goodwin noted that insect viruses which are not embedded in protein crystals, but which may form inclusions composed of aggregated virus particles, are referred to as "nonoccluded viruses." He suggested that insect viruses which are embedded in protein crystals be referred to as "occluded viruses." A sampling of several recent volumes of the *Journal of Invertebrate Pathology* indicates that these two terms have been generally accepted by insect virologists. These terms have also been used by the Invertebrate Virus Subcommittee of the International Committee on the Nomenclature of Viruses (see C. Vago in "Monographs in Virology," P. Wildy, ed., Vol. 5, pp. 17-19, 1971). No general term, however, is in use for the proteinaceous crystals in which the virions of the occluded viruses are embedded. A variety of terms including "inclusion body," "polyhedron," "polyhedral inclusion body," "capsule," "spherule," "virus-containing inclusion," "proteinic crystal," "virion-occluding proteinic spindle," etc. are used to denote these bodies. Authors who wish to use one or more of these terms frequently resort to defining them specifically in their reports to avoid confusion, not only for readers from closely related disciplines, but for insect virologists as well. Although terms such as "polyhedra" and "capsules" are very useful and can continue to be used, a more general categorical term for the proteinaceous crystals in which the virions are occluded seems desirable.

If viruses occluded in proteinaceous crystals are to be known as "occluded viruses" then it is quite logical to refer to the complex of the virion(s) and proteinaceous crystal as an "occlusion body." The adoption of this simple term would have two major advantages over the existing frequently confusing and often cumbersome terminology, namely (1) the terms "inclusion" and "inclusion body" could be used by invertebrate virologists in the same sense they are used by other virologists, and (2) the terms "occlusion" and "occlusion body" could be used in reference to "polyhedra," "capsules," "spindles," etc., as well as virion-occluding proteinaceous crystals with less well defined shapes.

Brian A. Federici
Boyce Thompson Institute
for plant research
1086 North Broadway
Yonkers, New York 10701 USA

BALLOT RESULTS

DELINQUENT MEMBERSHIPS

The resolution clarifying procedures for handling delinquent membership in the Society was passed. This resolution shall become Section 14, Article III of the Constitution.

The resolution is as follows:

"A member shall become delinquent upon failure to pay dues within the calendar year. No member in arrears for dues shall receive the publications of the Society or benefit from special subscription rates to journals arranged by the Society until all arrears shall have been paid. Having failed to pay dues for two successive calendar years, delinquent members shall be dropped from the membership list after written notice by the Secretary and all their rights and privileges as such shall thereupon cease."

The resolution was passed by a vote of 106 to 4.

THIRD INTERNATIONAL CONGRESS OF PARASITOLOGY

Professor C. Vago has received confirmation from the Organizing Committee of the International Congress of Parasitology for his plan to hold a symposium on the topic of "Pathology of Parasites." Tentatively, the symposium will be included within the time period reserved for Section G-7--Invertebrate Pathology. In addition to the symposium, several short communications have been submitted to the Organizing Committee for Section G-7. Further details of the symposium will be included in the Congress program and in a future NEWSLETTER.

The Congress of Parasitology will be in Munich, 25-31 August 1974. Section G-7 is scheduled for Thursday, 29 August 1974, 11:00-13:00 and 15:00-17:30.

The third announcement for the Congress, including program information and forms for registration, housing and excursions and tours has been posted. These materials may be obtained from:

Dr. G. Lammle
Secretary General, ICOPA III
P.O. Box 55
D 8000, Munchen 34
FEDERAL REPUBLIC OF GERMANY

POSITION AVAILABLE

A postdoctoral position is available immediately at the Boyce Thompson Institute. The position is for a virologist with biochemical experience to study poxviruses of invertebrates. Send curriculum vitae and names of three references to:

Dr. Donald W. Roberts
Boyce Thompson Institute
1086 North Broadway
Yonkers, N.Y. 10701 USA

