

AMCOP XXXIX
ANNUAL MIDWESTERN CONFERENCE
OF PARASITOLOGISTS



SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE, ILLINOIS
JUNE 6 & 7, 1987
SYMPOSIUM:
MODERN SYSTEMATICS IN PARASITOLOGY

AMCOP XXXIX, 1987
Affiliate American Society of Parasitologists

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A M C O P

SIUE
June 4-6, 1987
Program Schedule

THURSDAY, June 4, 1987

4:00-10:00 PM Check in Tower Lake Housing or Edwardsville Days Inn

7:00-12:00 PM Social gathering Myer home

FRIDAY, June 5, 1987

8:00-11:00 AM Registration, coffee, Communications Building foyer

9:00-9:15 AM Welcoming remarks, Dr. Barbara Teters, Vice President and Provost

9:15-11:30 AM General Session, contributed papers, Communications Building Auditorium

11:30-1:00 PM Luncheon Break

1:00-3:00 Symposium

Speakers: Dr. Mary Beverley-Burton, Department of Zoology
University of Guelph

Dr. J. Ralph Lichtenfels
Animal Parasite Institute, U.S.D.A.

3:00-4:30 PM Poster-Demonstration Session, Science Laboratory 1216

4:30 PM Business Meeting, Science Laboratory 3114

6:00 PM Social Hour (cash bar)
Conference Center, 2nd Floor of University Center

7:00 PM Banquet Buffet
Conference Center, 2nd Floor of University Center

Speaker: Dr. Kevin Kazacos, Department of Veterinary Microbiology,
Pathology and Public Health
Purdue University

SATURDAY, June 6, 1987

8:00-9:00 AM Coffee and donuts, Science Building 3rd Floor foyer

9:00-11:00 AM General Session, contributed papers,
Science Building, Upper Auditorium 3114

11:00 AM Business Meeting
Science Building, Upper Auditorium 3114

DEMONSTRATIONS

1. *LEIDYNEMA PORTENTOSAE* (NEMATODA: OXYUROIDEA), A STUDY OF BODY-SURFACE TOPOGRAPHY USING SEM. XIONG YU, DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OH 43210.
2. THE EFFECT OF *SCHISTOSOMA JAPONICUM* INFECTION ON THE GONADS OF ITS SNAIL HOST, *ONCOMELANIA HUPENSIS QUADRASI*. F.G. CLAVERIA, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, CINCINNATI, OH 45221.
3. PROTONEPHRIDIA IN FEMALE *MACRACANTHORHYNCHUS HIRUDINAEUS* (ACANTHOCEPHALA) AS VIEWED IN SEM AFTER FREEZE FRACTURING. KEITH KRAPF AND T.T. DUNAGAN, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, IL 62901-6512.
4. PEOPLE-PLACES-ACANTHOCEPHALA: A STUDY OF ACANTHOCEPHALAN LITERATURE FROM 1900 UNTIL THE PRESENT. T.T. DUNAGAN AND DONALD M. MILLER, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, IL 62901-6512.
5. THE LIFE CYCLE OF THE NEMATODE, *NEMATOSPIROIDES DUBIUS*. PAUL M. NOLLEN, DEPARTMENT OF BIOLOGICAL SCIENCES, WESTERN ILLINOIS UNIVERSITY, MACOMB, IL 61455.
6. THE LIFE CYCLE OF THE GENUS *PHILOPHTHALMUS*. PAUL M. NOLLEN, DEPARTMENT OF BIOLOGICAL SCIENCES, WESTERN ILLINOIS UNIVERSITY, MACOMB, IL 61455.
7. HOW TO TRAP A TAPEWORM. PETER W. PAPPAS, DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OH 43210-1293
8. PARASITE INDUCED INTERSEX MIDGES. J.H. HUBSCHMAN AND M.A. STACK, DEPARTMENT OF BIOLOGICAL SCIENCES, WRIGHT STATE UNIVERSITY, DAYTON, OHIO, 45435.
9. CHARACTERIZATION OF THE PROTECTIVE EXOANTIGENS OF *TRYPANOSOMA LEWISI*. V. PRASERTSIRIROJ AND D.G. DUSANIC, DEPARTMENT OF LIFE SCIENCES, INDIANA STATE UNIVERSITY, TERRE HAUTE, IN. 47809.

PAPERS

1. THE EFFECT OF *PLAGIORHYNCHUS CYLINDRACEUS* (ACANTHOCEPHALA) INFECTION ON THE ACQUISITION AND USE OF ENERGY BY STARLINGS (*STURNUS VULGARIS*). VINCENT A. CONNERS, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF NEBRASKA-LINCOLN, LINCOLN, NE 68588-0118.
2. DIFFERENTIAL SUSCEPTIBILITY OF MALE AND FEMALE *ONCOMELANIA HUPENSIS QUADRASI* INFECTED WITH *SCHISTOSOMA JAPONICUM* (PHILIPPINE STRAIN). FLORENCIA G. CLAVERIA, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, OH 45221.
3. THE PREVALENCE AND INTENSITY OF *BAYLISSASCARIS PROCYONIS* (NEMATODA: ASCARIDA) IN RACCOONS OF VARIOUS HABITATS IN MISSOURI. T. E. DAVIS, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF MISSOURI-COLUMBIA.
4. CYTOCHEMICAL LOCALIZATION OF PHOSPHATASE ACTIVITIES IN CYSTICERCIDS AND EXCYSTED SCOCELES OF THE TAPEWORM, *HYMENOLEPIS DIMINUTA*. DAVID A. LEIBY. DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OHIO 43210.
5. AGE-SPECIFIC TRENDS OF *BLATTICOLA BLATTAE* INFRAPOPULATIONS IN A LABORATORY POPULATION OF *BLATTELA GERMANICA*. JOHN W. MELLEN, LABORATORY OF PARASITOLOGY, DEPT. OF BIOLOGY, TEXAS A & M UNIVERSITY, COLLEGE STATION, TEXAS 77843.
6. HELMINTHS OF RAINBOW SMELT, *OSMERUS MORDAX* (FAMILY: OSMERIDAE) FROM FIVE LOCALITIES IN LAKE HURON AND LAKE MICHIGAN, WITH EMPHASIS ON *DIPLOSTOMUM SPATHACEUM*. P.M. MUZZALL* AND C.R. PEEBLES, DEPARTMENT OF NATURAL SCIENCE, MICHIGAN STATE UNIVERSITY, EAST LANSING, MI 48824.
7. *ACANTHOCEPHALOIDES PROPINQUUS* (DUJARDIN, 1845) SPECIES COMPLEX (ACANTHOCEPHALA). GENETIC AND MORPHOLOGICAL STUDIES OF THE POPULATIONS OF *ACANTHOCEPHALOIDES* PARASITIZING MEDITERRANEAN FISH. F. RENAUD, I. DE BURON AND L. EUZET. LABORATOIRE DE PARASITOLOGIE COMPAREE. USTL-PLACE E. BATAILLON, 34060 MONTPELLIER CEDEX - FRANCE.
8. CUTANEOUS SUGAR TRANSPORT BY *CLINOSTOMUM MARGINATUM* (DIGENEA): CHANGES DURING POSTMETACERCARIAL CULTIVATION. G.L. UGLEM, PHYSIOLOGY GROUP, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506, AND O.R. LARSON, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NORTH DAKOTA, GRAND FORKS, ND 58202.

9. METACERCARIAL CYST OF *CLINOSTOMUM MARGINATUM* (DIGenea): FINE STRUCTURE AND PERMEABILITY. O. R. LARSON, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NORTH DAKOTA, GRAND FORKS, ND 58202, G. L. UGLEM AND K. J. LEE, PHYSIOLOGY GROUP, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506.
10. ONTOGENY OF GLUCOSE TRANSPORT IN *HYMENOLEPIS DIMINUTA* (CESTODA). R. B. ROSEN AND G. L. UGLEM, PHYSIOLOGY GROUP, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506.
11. PATHOLOGY OF *ASPIDOGASTER CONCHICOLA* IN NATURALLY AND EXPERIMENTALLY INFECTED *CIPANGOPALUDINA CHINENSIS* AND *ELIMIA LIVESCENS* SNAILS. M. K. HUEHNER, DEPARTMENT OF BIOLOGY, HIRAM COLLEGE, HIRAM, OH 44234.

DEMONSTRATIONS

1. *LEIDYNEMA PORTENTOSAE* (NEMATODA: OXYUROIDEA), A STUDY OF BODY-SURFACE TOPOGRAPHY USING SEM. XIONG YU, DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OH 43210.

Both male and female adults of *Leidyneema portentosae* were examined with scanning electron microscope. Males have two amphids, four cephalic papillae, and eight "V" shaped lips surrounding the mouth. The excretory pore of the female is located at the end of a digitiform projection. The excretory pore of the male is surrounded by a low cuticular ring. The cuticle of the male has numerous cuticular bosses posterior to the esophagus. Males have caudal papillae but no external phasmids, females have phasmids but no caudal papillae.

2. THE EFFECT OF *SCHISTOSOMA JAPONICUM* INFECTION ON THE GONADS OF ITS SNAIL HOST, *ONCOMELANIA HUPENSIS QUADRASI*. F.G. CLAVERIA, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, CINCINNATI, OH 45221.

Hepatogonads of 6 adult male and 6 adult female *O. h. quadrasi* exposed to 3-5 miracidia of *S. japonicum*, were fixed 25 wks post-exposure and processed for TEM. Marked reduction in both testicular and ovarian tissues was observed. Among infected female snails, 4 showed total loss of the ovary. Infected ovaries have few pre-meiotic and previtellogenic oocytes. Vitellogenic oocytes were almost, always absent. Yolk synthesis is apparently inhibited from progressing further than previtellogenesis or early vitellogenesis, as shown by the presence of oocytes with numerous empty vesicles and yolk bodies containing little pre-yolk materials. Damage to the acinar wall is extensive evidenced by the breakdown of both germinal epithelium and follicle cells, even prior to extensive yolk synthesis. Testicular acini are either markedly reduced or persistent with no spermatogenic cell differentiation. Germinal epithelium is sloughed off, Sertoli cells showed microvilli-like projections, and around each acinus are numerous amoebocytes (=hemocytes). Delayed cytokinesis is evident in secondary spermatocytes, possessing poorly developed Golgi body. Other striking features are atypical shapes of the Nebenkerne (NE), redundant microtubules around the NE, superfluous cytoplasm between NE and the flagellar axoneme. It appears that spermiogenesis in infected male snails is interrupted as early as the cup-stage. This documents the occurrence of parasitic castration in *O. h. quadrasi*, as a consequence of *S. japonicum* infection.

3. PROTONEPHRIDIA IN FEMALE *MACRACANTHORHYNCHUS HIRUDINCAEUS* (ACANTHOCEPHALA) AS VIEWED IN SEM AFTER FREEZE FRACTURING. KEITH KRAPP AND T.T. DUNAGAN, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, IL 62901-6512.

The overall appearance of flame bulbs in female worms is the same as previously observed for males. However, high magnification examination of the outer surface of these bulbs revealed the absence of a membrane. Instead this surface is composed of a loose feltwork of fibers that appear much as the surface of filter paper would appear under similar circumstances; namely, a large number of openings or channels formed by a random organization of fibers. Freeze-fracture of these flame bulbs indicated that the entire wall of the bulb appeared as loosely organized as the surface. However, some sites appear to have fibers tightly packed and organized as tubes within the wall. These tubes sometimes extend beyond the plane of fracture confirming their organization. Large quantities of material precipitated by the fixation technique regularly crowd flame bulb lumens as well as the lumen of the bladder. Small filaments may be seen ramifying throughout these masses and occasionally traversing long distances between masses. The origin or nature of these masses of material is unknown.

4. PEOPLE-PLACES-ACANTHOCEPHALA: A STUDY OF ACANTHOCEPHALAN LITERATURE FROM 1900 UNTIL THE PRESENT. T.T. DUNAGAN AND DONALD M. MILLER, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, IL 62901-6512.

A survey of world literature from 1900 to present which includes some reference to Acanthocephala has been completed. The number of yearly references ranges from 4 in 1901 to a high of 194 in 1975. Most acanthocephala are mentioned in the context of animal surveys in which taxonomic identification of host parasites is the primary purpose of the publication. This bias has held throughout this period. Descriptive studies including that of new species are next in abundance whereas all other studies including those on biology are a distant third.

A plot of the number of different first authors vs. time (in years) indicates that the number of investigators including acanthocephalans in their work continues to rise. However, when the total is divided by the number of different first authors considered over the 86 years under consideration, it becomes clear that individual output has gradually fallen. It now resides at less than two publications per author. It is also clear that resources on available references lag behind the actual publication date for much of the world's literature by three or four years. This delay is primarily related to material from the Soviet Union and certain East European countries although other non-English literatures are also involved: a surprising finding in this electronic age.

5. THE LIFE CYCLE OF THE NEMATODE, *NEMATOSPIROIDES DUBIUS*. PAUL M. NOLLEN, DEPARTMENT OF BIOLOGICAL SCIENCES, WESTERN ILLINOIS UNIVERSITY, MACOMB, IL 61455.

This is a video tape illustrating the various stages in the life cycle of this nematode parasite of mice. Living material is used throughout to show adult, egg, and larval stages. Propagation methods of the life cycle are emphasized.

6. THE LIFE CYCLE OF THE GENUS *PHILOPPHTHALMUS*. PAUL M. NOLLEN, DEPARTMENT OF BIOLOGICAL SCIENCES, WESTERN ILLINOIS UNIVERSITY, MACOMB, IL 61455.

This is a video tape showing in detail the stages of the life cycle of the eyefluke of birds, *Philophthalmus*. Living, preserved, and graphic material are used to illustrate the various stages. Detailed coverage is given to the adult organ systems, the egg making process, egg hatching, miracidial host finding behavior, cercarial movement, cyst formation, and excystment of the juvenile worms.

7. HOW TO TRAP A TAPEWORM. PETER W. PAPPAS, DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OH 43210-1293

In 1854, Alpheus Myers patented a "tapeworm trap" and "tapeworm operation". The trap consisted of a small metal spring-loaded capsule with a string attached to one end. The inventor recommended that a person with a tapeworm fast for several days; this, of course (!), would make the tapeworm hungry. The trap was then baited with food and swallowed by the infected person. When the tapeworm stuck its "head" inside the trap, the trap snapped shut on the tapeworm's head. The trap and tapeworm could then be removed from the patient's intestine by simply pulling on the string that was attached to the trap.

Do you believe that such a trap was invented? I didn't when I read about it (Murphy, J. 1986. Guess Again. Bradbury Press, N.Y.), but a check of the records of the United States Patent Office reveals that such a trap and operation were, in fact, patented. For your information and, in particular, your amusement, photographic copies of the original patents will be on display.

8. PARASITE INDUCED INTERSEX MIDGES. J.H. HUBSCHMAN AND M.A. STACK, DEPARTMENT OF BIOLOGICAL SCIENCES, WRIGHT STATE UNIVERSITY, DAYTON, OHIO, 45435.

Chironomus decorus (Diptera: Chironomidae) from western Lake Erie are parasitized by *Limnomermis bathybia* (Nematoda: Mermithidae). Parasitized adult midges collected over the period of May to October 1985 exhibit intersex characteristics. Specifically, parasitized female midges lost certain sex characteristics and parasitized male midges acquire sex characteristics common to non-parasitized female midges. Parasitized female midges exhibit: (1) a fused ninth sternite normally unfused in non-parasitized females; (2) a loss of genital opening; and (3) a loss of spermathecae. Parasitized male midges exhibit (1) a modification of the normally elongated yet rounded abdominal segments to a more shortened, squared shape; (2) a loss of the long plumose antennae replaced by short nonplumose antennae possessed by female midges; (3) widening of the wings characteristic of females; and (4) formation of paired bristle pads on the eighth sternite characteristic of female midges.

- 9 CHARACTERIZATION OF THE PROTECTIVE EXOANTIGENS OF *TRYPANOSOMA LEWISI*. V. PRASERTSIRIROJ AND D.G. DUSANIC, DEPARTMENT OF LIFE SCIENCES, INDIANA STATE UNIVERSITY, TERRE HAUTE, IN. 47809.

Trypanosoma lewisi from immunosuppressed infected rats or plasma from immunosuppressed uninfected rats (IRP). A third group served as unimmunized control. Rats were immunized 6 times at 3 day intervals. Three days after the last injection, all animals were challenged with 1×10^5 trypanosomes. Parasitemias were monitored by haemocytometer counts of trypanosomes in the blood. All animals displayed parasitemias except those immunized with ExAg. The ExAg, IRP, and cellular antigens (CAG) of *T. lewisi* were defined by Western blot analyses. A minimum of seven trypanosome exoantigens were detected in ExAg with hyperimmune serum. These had apparent molecular weights ranging from 60 to 130 KD. The 120, 125, and 130 KD antigens of the ExAg were not observed in CAG incubated with antiserum raised against plasma containing exoantigens. More antigens were detected in ExAg and CAG when reacted with day 39 than day 10 antisera from infected rats. Antigens of approximately 80 and 95 KD reacted with all antisera tested. The functions of each ExAg is being examined following immunoaffinity isolation with monoclonal antibodies.

PAPERS

1. THE EFFECT OF *PLAGIORHYNCHUS CYLINDRACEUS* (ACANTHOCEPHALA) INFECTION ON THE ACQUISITION AND USE OF ENERGY BY STARLINGS (*STURNUS VULGARIS*). VINCENT A. CONNERS, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF NEBRASKA-LINCOLN, LINCOLN, NE 68588-0118.

Recent work on weight gain, relative position within the clutch, and time to fledgling of *Plagiorhynchus cylindraceus*-infected European starling nestlings (*Sturnus vulgaris*) did not detect adverse effects that might impair survivorship of hosts. As part of a study to ascertain whether *P. cylindraceus* adversely affects the nutritional status of its definitive host, the energy requirements of infected and uninfected starlings were quantified in the laboratory. Adult starlings were maintained under stressed (4°C) and non-stressed (25°C) conditions and fed ad libitum on a defined diet. Infected males and females had significantly lower existence metabolisms (V_{O_2} consumption rates) than did controls under both stressed and non-stressed conditions. Infected stressed males had significantly lower average daily body weights, consumed significantly more energy per gram, and extracted significantly less energy per gram of food ingested than did controls. In conjunction with the death of two infected stressed females these results indicate a significant adverse effect upon the acquisition and use of energy by the host due to infection.

2. DIFFERENTIAL SUSCEPTIBILITY OF MALE AND FEMALE *ONCOMELANIA HUPENSIS QUADRASI* INFECTED WITH *SCHISTOSOMA JAPONICUM* (PHILIPPINE STRAIN). FLORENCIA G. CLAVERIA, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, OH 45221.

Laboratory reared male and female *O. h. quadrasi* were exposed to *S. japonicum* infection. In three of four trials, infection rates in female snails (30.5 - 68.0%) were higher than in males (8.6 - 28.6%). To compare the fate of miracidia after penetration (i.e. mother sporocyst) between male and female snails, 50 males and 50 females (+/- 20 wks old) were exposed individually to 20 *S. japonicum* miracidia. Ten snails per sex were fixed 3, 12, 24, 48, and 72 hrs post-exposure (PE). Each snail was serially sectioned to check for encapsulated and unencapsulated mother sporocysts. In 23 female snails (65.2%) and 12 males (39.3%), mother sporocysts were all encapsulated. Six male snails (17.6%) showed 100% encapsulation. Among 12 females and 16 males with both positive and negative host-tissue response, encapsulated mother sporocysts in female snails varied from 7.15- 50.0%, and 20.0 - 71.4% in males. The distribution of encapsulated and unencapsulated mother sporocysts in both sexes suggests that males are more resistant to infection by way of a more efficient host tissue reaction in the form of encapsulation. Whether resistance in *O. h. quadrasi* to *S. japonicum* is genetically determined is not known, and therefore warrants further investigation.

3. THE PREVELENCE AND INTENSITY OF BAYLISSASCARIS PROCYONIS (NEMATODA: ASCARIDA) IN RACCOONS OF VARIOUS HABITATS IN MISSOURI. T. E. DAVIS, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF MISSOURI-COLUMBIA.

During the 1985 and 1986 furbearer seasons, approximately 250 and 300 raccoons (*Procyon lotor*) respectively were collected from eight different zoogeographic regions in Missouri. The raccoons were necropsied to determine the prevalence and intensity of *Baylissascaris procyonis*, an intestinal ascarid nematode. Raccoon reproductive success was estimated through numbers of placental scars and the hosts were aged through radiographs and dental sectioning. These parameters were then related to location of collection to determine the effect of host habitat on worm population. Preliminary results indicate that raccoons collected from wooded, hilly habitats have the greatest prevalence and intensity of infection while those collected from the open plains have the lowest.

4. CYTOCHEMICAL LOCALIZATION OF PHOSPHATASE ACTIVITIES IN CYSTICERCOCIDS AND EXCYSTED SCOCELES OF THE TAPEWORM, HYMENOLEPIS DIMINUTA. DAVID A. LEIBY, DEPARTMENT OF ZOOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OHIO 43210.

The activities of alkaline and acid phosphatases (AkPase and AcPase, respectively) were localized cytochemically in cysticeroids and excysted scoleces of *Hymenolepis diminuta*. Incubations for localization of AkPase and AcPase activities were performed at pH 8.8 and 4.3, respectively. Excysted scoleces were obtained by incubating cysticeroids in successive solutions of pepsin/HCL and trypsin/bile salts. In cysticeroids and excysted scoleces, AkPase and AcPase were observed to have differential distributions. In cysticeroids, AkPase was localized primarily in the outer limiting membrane, with the greatest activity in the region where the capsule and cercomer join. AcPase activity was most intense in the intermediate cell layer, however, activity was also observed in the region of the anterior canal and capsule of the scolex. In excysted scoleces, AkPase was found associated primarily with the microvilli, while AcPase was observed only in the cells underlying the tegument. The differential distribution of enzymatic activities suggests that cysticeroids and excysted scoleces of *H. diminuta* possess two phosphatases with different functional roles; AkPase may be involved in nutrient acquisition, while AcPase may be involved in the excystation of the scolex through degradation of the tissues surrounding the anterior canal and the capsule of the scolex.

5. AGE-SPECIFIC TRENDS OF BLATTICOLA BLATTAE INFRAPOPULATIONS IN A LABORATORY POPULATION OF BLATTELA GERMANICA. JOHN W. MELLEN, LABORATORY OF PARASITOLOGY, DEPT. OF BIOLOGY, TEXAS A & M UNIVERSITY, COLLEGE STATION, TEXAS 77843.

A vertical population study is reported which detected age-related changes in average prevalence and intensity of *Blatticola blattae* infections in a laboratory population of the domestic cockroach *Blattella germanica*. Age-prevalence and age-intensity profiles of *Blatticola blattae* infropopulations are compared qualitatively to model predictions of a pure immigration-death process. The age-specific prevalence profile is consistent with the random model showing a steep monotonic increase to 100% prevalence indicative of a high transmission rate, while the age-intensity profile demonstrates a nonrandom convex pattern of change thought to be indicative of density-dependent regulation in the nematode infropopulations. This interpretation is supported by decreasing age-trends in the variance to mean ratio of intensity, and a negative correlation between mean intensity and average worm volume per host. A discrete-time model of age-structured infropopulation dynamics incorporating growth in a spatially limited environment is presented as a formal representation of the dynamics of this system.

6. HELMINTHS OF RAINBOW SMELT, OSMERUS MORDAX (FAMILY: OSMERIDAE) FROM FIVE LOCALITIES IN LAKE HURON AND LAKE MICHIGAN, WITH EMPHASIS ON DIPLOSTOMUM SPATHACEUM. P.M. MUZZALL* AND C.R. PEEBLES, DEPARTMENT OF NATURAL SCIENCE, MICHIGAN STATE UNIVERSITY, EAST LANSING, MI 48824.

A total of 428 smelt, *Osmerus mordax*, were collected from four Michigan localities associated with Lake Huron and one Indiana locality in southern Lake Michigan. Seven helminth species (1 Digenea, 3 Cestoda, 2 Nematoda, 1 Acanthocephala) were found in smelt when they were spawning in April 1984, 1985, and 1986. At least 97% of the smelt from each locality were infected with one or more helminths. *Diplostomum spathaceum*, *Eubothrium* sp., *Cystidicola* sp., and *Echinorhynchus salmonis* infected smelt from all localities. Numerically, the helminth faunas of smelt from all localities were dominated by *D. spathaceum* and *E. salmonis*. The lens of the right eye of smelt from five localities had a higher mean intensity of *D. spathaceum* than did the left lens.

7. *ACANTHOCEPHALOIDES PROPINQUUS* (DUJARDIN, 1845) SPECIES COMPLEX (ACANTHOCEPHALA). GENETIC AND MORPHOLOGICAL STUDIES OF THE POPULATIONS OF *ACANTHOCEPHALOIDES* PARASITIZING MEDITERRANEAN FISH. F. RENAUD, I. DE BURON AND L. EUZET. LABORATOIRE DE PARASITOLOGIE COMPAREE. USTL-PLACE E. BATAILLON, 34060 MONTPELLIER CEDEX - FRANCE.

The populations of *Acanthocephaloides* parasitic in *Gobius niger*, *Zosterisessor ophiocephalus* (Gobiidae) and *Arnoglossus laterna* (Bothidae) were studied. A classical morphological investigation revealed the existence of slight differences between the specimens, which could be the expression of intraspecific variability. Electrophoretic techniques, however, brought to light a mating isolation between the acanthocephalan populations studied. The genetic investigation disclosed that *Acanthocephaloides* parasitizing *G. niger* and *A. ophiocephalus* on one hand and *A. laterna* on the other are sexually isolated and are considered to constitute two biological species. The name *Acanthocephaloides propinquus* (Dujardin, 1845) Meyer, 1932 designates the parasite of *Gobius niger* and of *Zosterisessor ophiocephalus*, and *Acanthocephaloides geneticus* Buron, Renaud and Euzet, 1986, was given to the species found in *Arnoglossus laterna*. This genetic comparison has confirmed the value of morphological differences which seemed too slight to raise the populations to species status.

8. CUTANEOUS SUGAR TRANSPORT BY *CLINOSTOMUM MARGINATUM* (DIGENEA): CHANGES DURING POSTMETACERCARIAL CULTIVATION. G.L. UGLEM, PHYSIOLOGY GROUP, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506, AND O.R. LARSON, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NORTH DAKOTA, GRAND FORKS, ND 58202.

Metacercariae of *Clinostomum marginatum* have two simultaneously operational systems for transporting glucose across the tegument, active transport and facilitated diffusion (Uglem and Larson, 1987, Int'l J Parasit 17: 847-850). Both transport functions were lost during cultivation in embryonating chicken eggs. After transplanting freshly excysted worms onto the chorioallantois, the worms migrated to the clear albumen within a day. A small number of worms became ovigerous within 4-7 days. To determine whether the loss in transport function could be related to the external Na⁺ concentration, excysted worms were incubated in normal Tyrode's saline (115 mM Na⁺) and in a series of Na⁺-poor Tyrode's salines (100, 75, 50 and 2 mM Na⁺) in which the deleted NaCl was replaced isosmotically with mannitol. The active transport component disappeared within a day at all Na⁺ concentrations. Facilitated diffusion was retained when the Na⁺ concentration was above 75 mM, but at 75 mM or lower, it also disappeared. Returning worms from a Na⁺-poor saline (e.g., 2 mM) to normal Tyrode's saline progressively restored within 3 days the facilitated diffusion component. There was no discernible maturation during cultivation in Tyrode's salines. These results show that cultivation conditions can modulate tegumental function in metacercariae of *C. marginatum*, and that the Na⁺ concentration of egg albumen (75-80 mM) is insufficient to sustain either facilitated diffusion or active transport.

9. METACERCARIAL CYST OF *CLINOSTOMUM MARGINATUM* (DIGENEA): FINE STRUCTURE AND PERMEABILITY. O. R. LARSON, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NORTH DAKOTA, GRAND FORKS, ND 58202, G. L. UGLEM AND K. J. LEE, PHYSIOLOGY GROUP, SCHOOL OF BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506.

Metacercariae of *Clinostomum marginatum* (yellow grub) are commonly encysted tissue parasites of freshwater fishes. Cutaneous transport of glucose by the worm involves two systems, active transport and facilitated diffusion (Uglem and Larson, 1987, Int'l J Parasit 17:847-850). However, the absorptive capacity could be limited by the fibrous cyst wall which is 10-25 m thick. Electron microscopy revealed a wall of flattened fibrocytes, small fat deposits and vacuoles embedded between irregular layers of encysted worms were incubated in 3H-glucose, with and without the glucose transport inhibitors phlorizin and phloretin. After incubation, the worms were mechanically excysted, washed and processed to determine glucose uptake rates. The maximal transport rate (V_{max}) by encysted worms was greater than that obtained for worms excysted prior to incubation with substrate. Apparently, the microenvironment within the cyst is more conducive to cutaneous transport than are "unnatural" excysted conditions. Moreover, the presence of phlorizin or phloretin in the bathing medium had no effect on glucose uptake by encysted worms. Therefore, the selective permeability of the cyst wall permits free diffusion of glucose to the cutaneous transport systems of the worm, while restricting the movements of phlorizin and phloretin.

10. ONTOGENY OF GLUCOSE TRANSPORT IN *HYMENOLEPIS DIMINUTA* (CESTODA). R. B. ROSEN AND G. L. UGLEM, PHYSIOLOGY GROUP, UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506.

Active glucose transport by adults of *Hymenolepis diminuta* is known to be Na⁺-dependent and more sensitive to phlorizin than to phloretin. We found that cysticercoid larvae (stages III and V of Voge and Heyneman, 1957, Calif Publ Zool 59:549-580) of this species also absorb glucose mediated transport. The V_{max} and K_t for stage V transport were 9.9 +/- 2.46 nmoles/25 cysticercoids/h, and 0.8 +/- 0.27 mM, respectively. The preference of the larval system was for glucose followed by galactose > B-methylglucoside > methylglucoside; mannose, 3-0-methylglucose, glucosamine, 2-deoxyglucose and melibiose did not interact with the system. Although these sugars have similar affinities for the adult transport system, larval transport was insensitive to Na⁺ and phlorizin, but was inhibited by phloretin indicating facilitated diffusion. These results suggest that the mechanism for active glucose transport in this tapeworm is developed after the larva transfers to the vertebrate host. (Supported by a fellowship to R.B.R. from the Appalachian College Program with funds granted by the Mabel Pew Myrin Trust).

held at School of Life Sciences, Southern Illinois University at Edwardsville, Edwardsville, Illinois in early June of 1987.

Members at AMCOP-38 voted to continue the effort to establish a trust fund to support the student awards. Future meeting sites established were as follows: AMCOP-40, Miami, Ohio; AMCOP-41, Purdue University, Indiana; and AMCOP-42, University of South Dakota, Vermillion, South Dakota. Suggested symposia themes for ensuing meetings were: (1) Newer methods for systematics in parasitology (2) Neurobiology of helminths (3) Genetically engineered vaccines (4) New approaches to chemotherapy of parasitic diseases, and (5) Experimental? Ecology.

Committees appointed by the Presiding Officer were:

- Nominating Committee: Gary Uglem
Peter Pappas
- LaRue Committee: Tommy T. Dunagan
William Bethel
- Herrick Committee: Jane Starling
Robert Grassmick
- Meeting Site Committee: Paul Nollen
Donal Myer
- Symposium Committee: Daniel Snyder
Douglas Woodmansee
- Acknowledgements: William Coil
Arthur Duwe
- Auditing Committee: E.J. Huggins
A.D. Johnson

AMCOP-38 RECAP
AMCOP-38 TREASURERS REPORT FOR 1986-87

BALANCE ON HAND 18 JUNE 1985	1,429.83
INCOME	
MEMBERSHIP DUES:	
1985 Mbrshps:	\$6.00
1986 Students:	\$40.00
1986 Mbrshps:	\$294.00
INTEREST:	
CDT UNION:	\$85.31
ELI LILLY DONAT:	\$200.00
LARUE DONATIONS:	\$318.00
SIUC SCH MED:	\$272.71
CD INTRST:	*78.82
MISCELLANEOUS:	
SUBTOTAL:	\$2,645.85
EXPENSES	
Programs:	0.00
Postage:	263.00
Envelopes:	9.71
Herrick Award 1985	400.75
LaRue Award 1985	400.75
Miscellaneous	14.00
SUBTOTAL:	1,088.21
BALANCE ON HAND 8 JUNE 1986:	1,557.64
ASSETS CD-UNIV BK, 1985=886.00	964.82
CDT UNION SHARES:	25.00
TOT. NET WORTH: 4 JUN 86	2,547.46

11. PATHOLOGY OF ASPIDOGASTER CONCHICOLA IN NATURALLY AND EXPERIMENTALLY INFECTED CIPANGOPALUDINA CHINENSIS AND ELIMIA LIVESCENS SNAILS. M. K. HUEHNER, DEPARTMENT OF BIOLOGY, HIRAM COLLEGE, HIRAM, OH 44234.

Naturally infected *Cipangopaludina chinensis* from the Upper Cuyahoga River, NE Ohio were found to contain from 1 to 12 *Aspidogaster conchicola* in hepatopancreas lumina. Pathology associated with the worms included erosion of columnar epithelia, hemocytic infiltration, fibrosis, and tissue compression which produced encapsulation-like swellings. Experimental infections of *C. chinensis* showed epithelial erosion at 30 days and hemocytic infiltration after 60 days. After 150 days, duct dilation and extensive fibrosis also occurred. When a young worm invaded the hemal spaces around the hepatopancreas, it became encapsulated. Gut contents of juvenile *A. conchicola* from experimentally infected *E. livescens* demonstrate that this worm is an epithelial grazer and suggest that feeding activities of *A. conchicola* may be a major cause of host epithelia erosion.

ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS
(AMCOP) (D.M. MILLER, SECRETARY/TREASURER)

The 38th AMCOP conference was held on the campus of the University of Missouri, Columbia, Missouri, 5-7 June, 1986 with 55 persons registered for the conference and an organizational membership of 104. Dr. George D. Cain of the University of Iowa was Presiding officer of the meeting. Dr. Leslie S. Uhazy of the University of Missouri was Program Officer and made local arrangements. Six demonstrations and 19 papers were presented by members. The C.A. Herrick Award (and \$200) for the best demonstration by a graduate student was awarded to M.C. Lewis and I.G. Welsford, Physiology Group, University of Kentucky, Lexington, Kentucky. The G.R. LaRue Award (and \$200) for the outstanding paper presentation was awarded to David A. Leiby from the Department of Zoology, the Ohio State University, Columbus, Ohio.

A symposium entitled "Gene Expression in Helminth Development" was presented by two speakers. Dr. Philip T. LoVerde, Department of Microbiology, School of Medicine, SUNY, Buffalo, New York, spoke on "Expression of developmental regulation genes in *Schistosoma mansoni*" and Dr. Donald L. Riddle, Division of Biological Sciences, University of Missouri-Columbia spoke on "Gene expression in the developmental biology of the dauer larva in *Caenorhabditis elegans*". The banquet speaker was Dr. Richard C. Tinsley, School of Biological Sciences, University of London, who spoke on "Correlation of Parasite Transmission with Host Biology in the Polystomatid *Monogenea*".

Officers elected for 1986-1987 were: Presiding Officer: Dr. Paul M. Nollen, Department of Biological Sciences, Western Illinois University, Macomb, Illinois, (309)-298-1359; Program Officer: Dr. Donal G. Myer, School of Life Sciences, Southern Illinois University at Edwardsville, Edwardsville, Illinois, (618)-692-3170.

The secretary/Treasurer of AMCOP is Dr. Donald M. Miller, Department of Physiology, Southern Illinois University, Carbondale, Illinois, (618)-536-5513. Dr. Miller will also serve as Representative to the American Society of Parasitologists 1986 council meeting in Denver, Colorado. AMCOP-39 will be

REPORT OF RESOLUTIONS COMMITTEE
ART DUWE AND WILLIAM COIL
JUNE 7, 1986
AMCOP 38

The membership of the Annual Midwest Conference of Parasitologists acknowledge the following individuals for their contributions to the success of this meeting.

1. To the Uhazy's, Jane and Les for opening their home to this group. To Dr. Uhazy for his organizational skills here at the U. of M.
2. To Dr. Don Miller who spent many hours assembling the abstracts. We also acknowledge his financial wizardry.
3. To Dr. George Cain who skillfully presided over the meetings with humor and well directed barbs.
4. To the invited speakers:
Dr. Philip LoVerde
Dr. Donald Riddle
Dr. Richard Tinsley
We thank these speakers for the stimulations they brought this group.
5. The membership thanks Eli Lilly, once again, for supporting the Herrick Award. We also acknowledge the anonymous donors for the LaRue Award.
6. We thank the Nelson Lecture Fund, University of Missouri, for making possible Dr. LoVerde's talk.
7. To the University of Missouri for providing facilities for the meeting and especially to Louis A. Sherman for this cordial welcome.

THE ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS
(AMCOP)

Objectives and Organization

A restatement to incorporate changes approved in 1986. Earlier statements have been approved in 1948, 1953, 1971, 1972, 1973, and 1974.

Name

The organization shall be known as the ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS (AMCOP), hereinafter referred to as the Conference.

Affiliation

The conference is an affiliate of the American Society of Parasitologists.

Objectives

The Conference is a gathering of parasitologists and students of parasitology for the purpose of informal discussion of research and teaching in parasitology and the furthering of the best interests of the discipline of parasitology.

Members

The Conference is open to all interested persons regardless of place of work, residence, or affiliation in other recognized societies. There are three categories of membership: Emeritus, Regular, and Student.

When a member retires from industry, university or other professional occupation, that person shall be eligible for emeritus membership.

Dues

Annual dues are required for emeritus, regular and student membership. A registration fee is charged during registration at annual conferences. The amount of this fee will be decided for each Conference by a committee composed of the Presiding Officer, the Secretary/Treasurer, and the Program Officer, who is to serve as its chair. Dues are established by the Policy Committee and collected by the Secretary/Treasurer.

Meetings

The Conference is held in the general midwestern area during early to mid-June, unless otherwise specified by a majority vote of the previous Conference or a majority vote of those listed members replying by mail ballot.

Bylaws

1. Simple majority vote of members in attendance at regularly scheduled meetings of the Conference shall determine the policies of the Conference.

2. The officers are a Presiding Officer, whose term of office is one year or until a successor is elected (normally the term expires with adjournment of the annual Conference over which the person presides); a Secretary/Treasurer, whose term of office is two years or until a successor is elected; a Program Officer whose term of office is one year; and a Policy Committee composed of the last five available retired Presiding Officers plus, ex officio and without vote, the current Presiding Officer and Secretary-Treasurer. All terms of office begin at the conclusion of the Conference in which the person was elected. The term of office of each full member of the Policy Committee is five years, or so long as the person is one of the five most recent, available Presiding Officers. The most recent past Presiding Officer available chairs the Policy Committee and is the Vice-President Officer of the current Conference.

3. The Presiding Officer, the Secretary/Treasurer, and the Program Officer are elected by a majority vote of those members attending a regularly scheduled business meeting of the Conference or by a majority vote of those replying to a mail ballot of the membership.

4. The Presiding Officer shall preside at all meetings of the Conference and shall arrange for a banquet speaker.

On the first day of a Conference the Presiding Officer shall appoint the following committees, which shall serve until they have reported on the last day of the annual Conference: (1) Nominating Committee, (2) Committee to Recommend Future Meeting Places, (3) Committee to Suggest Program Possibilities for Future Meetings, (4) Resolutions Committee, (5) Judging Committee, (6) Audit Committee and such other ad hoc committees as may be required.

The Presiding Officer shall appoint the Conference Representative to the Council of the American Society of Parasitologists for the year who must be a member of that society.

The current Presiding Officer serves as a member without vote of the Policy Committee.

5. The Secretary-Treasurer shall issue annual dues notices and about four months prior to each Conference a call for participants in the

program for each Conference; inform the new Presiding and Program Officers concerning duties and the members of the Policy Committee of their tenure and the Secretary of the American Society of Parasitology within three weeks after the annual election; serve as members without vote and the Secretary of the Policy Committee; and supervise all funds of the Conference.

6. The Program Officer shall be responsible for the general format of the Conference and for arranging suitable facilities and funding. It shall also be this person's responsibility to chair the special committee to determine and collect the registration fee for the Conference. The format of the Conference may vary, but should include both a demonstration session and a session of contributed papers both open to all members. A symposium may also be included, or may replace a session of contributed papers.

7. The Policy Committee shall determine by majority vote all matters of procedure and policy pertaining to the Conference upon which decision must be reached between consecutive Conferences, as well as all matters referred specifically to it by the membership. Such a vote may be requested by any member of the Conference but must be directed through the Secretary/Treasurer. The Chairperson of the Policy Committee shall request approval by the membership for all decisions of the Committee at the earliest subsequent business meeting of the Conference.

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Gene expression in the developmental biology of the dauer larva
in *Caenorhabditis elegans*

Donald L. Riddle
Division of Biological Sciences
University of Missouri-Columbia

Caenorhabditis elegans is a free-living soil nematode that feeds on bacteria. Formation of a developmentally arrested, nonfeeding dispersal stage called the dauer larva is enhanced by limited food, increasing concentrations of a *Caenorhabditis*-specific, fatty acid-like pheromone, and growth temperatures above 22 C. Recovery from the dauer stage is enhanced by an increased food supply, reduced pheromone levels, and lower temperatures. Worms apparently integrate these cues to maximize their survival in the soil by developing to the adult only when sufficient food is available to support reproduction. Dauer larvae have a unique cuticle structure and their mouths are tightly closed, providing them with enhanced resistance to desiccation and harsh chemical treatments such as exposure to detergents. Dauer larvae have been referred to as "non-aging" forms because they are capable of surviving for several months, and then recover to form adults with a normal post-dauer life span. More than 25 genes have been defined which affect the nematode's response to these environmental parameters. One mutant, *daf-22*, is defective in pheromone production and does not form dauer larvae unless exogenous dauer-inducing pheromone is added to the growth medium.

1. Riddle, Donald L. 1986. Post-embryonic development in *Caenorhabditis elegans*. In: Proceedings of the Sixth International Congress of Parasitology, pp. 223-231. Edited by M.J. Howell, Australian Academy of Science, Canberra.

Regulation of Gene Expression in the Blood Fluke
Schistosoma mansoni

Philip T. LoVerde
Department of Microbiology, School of Medicine
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Schistosoma mansoni is a multicellular parasite whose life cycle includes both human and snail hosts. Schistosomes are unusual among trematode parasites in that they undergo sexual differentiation in the vertebrate host. Sex is determined by a chromosomal mechanism in the zygote produced by copulating pairs of homogametic male and heterogametic female worms residing in an infected individual. Male and female developmental stages of the parasite are morphologically identical except for chromosomal content. Sexual differences are only expressed in the vertebrate host. Although sex is determined at the chromosomal level, it has been clearly shown that the male worm must be present for complete female maturation and development. Thus female worms obtained from experimental single-sex infections of vertebrate hosts are stunted and not sexually mature. In addition, mature female worms from normal infections, when removed from their male partners, cease egg laying and morphologically regress to a state resembling immature females, until they are reunited with mature male worms. The nature of the stimulus from the male schistosome responsible for female maturation is unresolved, although it has been shown to be independent of sperm transfer.

A single mature schistosome worm pair can produce as many as 300-1000 eggs per day. Each egg consists of a living embryo (miracidium) surrounded by an eggshell matrix that contains protein components rich in glycine, aspartic acid, lysine, serine and modified tyrosine. Approximately half of the eggs deposited by the female become entrapped within the tissues of the infected host and are retained in the body. A granulomatous inflammatory response that is immunologically mediated takes place at the site of entrapment. Thus eggs play a predominant role in the disease pathology caused by these parasites.

The unusual interplay between male and female schistosomes in the regulation of female development provides a unique system to study sexual differentiation. Moreover, since the production of eggs by mature worm pairs is responsible for most of the pathology in schistosomiasis, an understanding of schistosome female maturation and fecundity could bring about novel modes of disease control. We therefore have begun to study the molecular events underlying female schistosome maturation. This presentation will describe a developmentally regulated mRNA found only in the mature female worm, which we believe encodes an eggshell protein. This mRNA is not detectable in male worms, immature female worms or in eggs. During normal bisexual infections, the mRNA species which is 950 nucleotides in length is first detected at 28 days (the time of worm pairing) and increases to a high level at 35 day postinfection coinciding with the start of egg production. DNA sequence analysis of a cDNA suggests that the mRNA encodes a 16,000 dalton protein rich in glycine and tyrosine which has a great deal of similarity to the chorion (eggshell) proteins of insects.

1. Bobek, L., LoVerde, P.T., van Keulen, H. and Rekosh D.M. (1986) A developmentally regulated gene in *Schistosoma mansoni* that may encode an eggshell protein. In Molecular Strategies of Parasite Invasion. Eds. N. Agabian, H. Goodman, and N. Noguiera, Arlan Liss, Inc. N.Y.
2. Bobek, L., Rekosh, D.M., van Keulen, H. and LoVerde, P. T. (1986) Characterization of a female-specific cDNA derived from a developmentally regulated mRNA in the human blood fluke *Schistosoma mansoni*. Proc. Natl. Acad. Sci., USA, in press. Vol. 83.

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Dr. Nancy Wisniewski
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Mr. Xiong Xiong Yu
Dept. Zoology
Ohio State University
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614-292-8088

SUMMARY OF AMCOP MEETINGS 1949-Pres

Year	Meeting Site Banquet Speaker & Title PO=Program Officer, ST=Secretary/Treas. H=Herrick Award L=LaRue Award S=Symposium Title	Presiding Officer
1949	Univ. Wisconsin, Madison (AMCOP I) J. C. Baer	<u>H. J. Van Cleave</u>
1950	Univ. Michigan, Ann Arbor (II) W. W. Cort, Trends in Helminthological Research	<u>R. V. Bangham</u>
1951	Purdue Univ., Lafayette, Ind (III) J. E. Ackert, Some Observations on Hookworm Disease ST=W. Balamuth	<u>L. O. Nolf</u>
1952	Univ of Illinois, Urbana, Ill (IV) A. C. Walton, ST=W. Balamuth	<u>R. J. Porter</u>
1953	Iowa State College, Ames Ia (V) R. M. Cable, Parasitological Experiences in Puerto Rico ST=W. D. Lindquist	<u>C. A. Herrick</u>
1954	Michigan State Univ, East Lansing, MI (VI) G. F. Otto, Mosquitos, Worms, Somoans, and the Parasitologist in Samoa ST=W. D. Lindquist	<u>A. C. Walton</u>
1955	Notre Dame Univ, (VII) G. R. LaRue, Relationships in the Development of Digenetic Trematodes ST=W. D. Lindquist	<u>R. M. Cable</u>
1956	Univ. of Iowa, Iowa City, IA (VIII) W. H. Headlee, ST=F. J. Krudener	<u>W. D. Lindquist</u>
1957	Univ. of Michigan, Ann Arbor, MI (IX) A. C. Chandler ST=F. J. Krudener	<u>J. E. Ackert</u>
1958	Kansas State University, Manhattan, KA (X) H. W. Manter, Trematodes of Many Waters ST=F. J. Krudener	<u>G. R. LaRue</u>
1959	Northwestern Univ., Evanston, IL (XI) H. Van der Schalie, Contrasting Problems in Control of Schistosomiasis in Egypt and the Sudan ST=D. T. Clark	<u>G. F. Otto</u>
1960	Purdue Univ., Lafayette, IN (XII) P. P. Weinstein, Aspects of Growth and Differentiation of Parasitic Helminths <i>in vitro</i> and <i>in vivo</i> . ST=D. T. Clark	<u>F. J. Krudener</u>
1961	Ohio State Univ., Columbus, OH (XIII) B. Schwartz, Parasitology Old and New ST=D. T. Clark	<u>N. D. Levine</u>
1962	Univ. of Nebraska, Lincoln, NE (XIX) O. W. Olsen, The Life History of the Hookworm of Fur Seals. ST=D. T. Clark	<u>G. W. Kelley, Jr.</u>
1963	Univ. of Minnesota, St. Paul, MN (XV) F. G. Wallace, Observations on the Louisiana State University Inter-american Program in Tropical Medicine ST=D. T. Clark	<u>M. F. Hansen</u>
1964	University of Chicago, Chicago, IL (XVI) R. E. Kuntz, Paragonimiasis in Formosa ST=E. J. Huggins	<u>D. T. Clark</u>
1965	Kellog Biol. Station, Gull Lake, MI (XVII) L. Jacobs, Toxoplasmosis ST=E. J. Huggins	<u>P. E. Thompson</u>
1966	Univ. of Illinois, Urbana, IL (XVIII) D. L. De Guisti, The Acanthocephala ST=E. J. Huggins	<u>M. J. Ulmer</u>
1967	Iowa State Univ., Ames, IA (XVIV) N. D. Levine, Parasitology, Problems and Promise ST=E. J. Huggins H=P. M. Nollen [FIRST HERRICK AWARD]	<u>P. J. Silverman</u>
1968	Univ. of Wisconsin, Madison, WI (XX) D. R. Lincicome, The Goodness of Parasitism. (with APS & AIBS) ST=J. H. Greve H=W. G. Barnes	<u>F. G. Wallace</u>
1969	Univ. of Cincinnati, Cincinnati, OH (XXI) H. W. Stunkard, Life Histories and Systematics of Parasitic Flatworms ST=J. H. Greve H=B. Caverny H=T. P. Bonner	<u>H. W. Manter</u>

- 1970 Loyola, Univ., Chicago, IL (XXII) J. L. Crites
M. J. Ulmer, Helminths from Midwest to Mediterranean
ST=J. H. Greve H=J. Blankenspoor
- 1971 Univ. of Louisville, Louisville, KN (XXIII) E. Etges
M. Van der Schalie, Dam Large Rivers - Then What?
ST=J. H. Greve H=R. Campbell
- 1972 Southern Illinois Univ., Carbondale, IL (XXIV) B. J. Jaskowski
R. M. Cable, The Lighter Side of Parasitology. PO=T. T. Dunagan
ST=J. H. Greve H=E. M. Cornford
- 1973 Notre Dame Univ., IN (XXV) R. Shumard
R. F. Rick (Merck), Babesiosis and the Development of *Babesia* in
Ticks PO=R. Thorson ST=J. H. Greve H=? Danley
- 1974 Univ. of Michigan, Ann Arbor, MI (XXVI) D. Ameal
M. J. Ulmer, Snails, Swamps, and Swimmer's Itch. ST=J. H. Greve
H=P. T. LaVerde H=D. Prechel
- 1975 Iowa State Univ., Ames, IA (XXVII) W. Bemrick
P. M. Nollen, Studies on the Reproductive Systems of Parasitic
Flat-worms. or All You Wanted to Know About Sex in Worms
and Were Afraid to Ask. ST=J. H. Greve H=I. Wittrock
L=V. M. Nelson [FIRST LARUE AWARD]
- 1976 Univ. of Nebraska, Lincoln, NE (XXVIII) J. Greve
A. C. Todd, A Redefinition of Subclinical Parasitism and Its
Impact on World Politics. ST=W. H. Coil PO=M. H. Pritchard
H=W. L. Current L=C. A. Klu
- 1977 Kansas State Univ., Manhattan, KA (XXIX) T. T. Dunagan
A. J. Mac Innis, Snails, Dollars, DNA and Worms.
PO=W. D. Lindquist ST=W. H. Coil H=M. Fletcher
L=L. Smurro L=J. Ketchum
- 1978 Indiana Central Univ., Indianapolis, IN (XXX) E. J. Huggins
J. P. Dubey, Recent Advances in Feline and Canine Coccidia and
Related Organisms. PO=Milo Brandt ST=W. H. Coil
H=D. McNair L=G. Hendrickson

- 1979 Loyola Univ., Chicago, IL (XXXI) D. E. Gilbertson
E. Foor, Basic Studies in Reproduction (in Nematodes).
PO=B. J. Jaskowski ST=W. H. Coil H=G. Florin H=D. Minchella
L=M. Fletcher
- 1980 Eastern Michigan Univ., Ypsilanti, MI (XXXII) A. D. Johnson
J. R. Williams, Tropical Parasitology at the Junction of the White
and Blue Nile Rivers PO=E. Waffle ST=G. Garoian
H=C. L. Williams L=M. Goldman L=R. Gamble S=Functional
Morphology of Acanthocephala
- 1981 Eastern Illinois Univ., Charleston, IL (XXXIII) D. M. Miller
G. D. Cain, Antigenic Variation: New Techniques Applied to Old
Problems PO=B. T. Ridgeway ST=G. Garoian H=J. M. Holly
L=B. N. Tuggle S=Immunity to Protozoan Parasites
- 1982 Western Illinois Univ., Macomb, IL (XXXIV) D. G. Myer
J. D. Briggs, Biological Control of Invertebrates in International
Programs PO=P. M. Nollen ST=G. Garoian H=D. E. Snyder
L=C. L. Williams S=Biological Control of Organisms
- 1983 Univ. of Illinois, Urbana, IL (XXXV) C. M. Vaughn
H. M. Moon, Speculations on the Pathogenesis of
Cryptosporidiosis with Comparisons to Other Enteric Infections
PO=K. S. Todd, Jr. ST=G. Garoian H=K. J. Hamann L=K. W. Bafundo
S=Intestinal Protozoa
- 1984 Univ. of Iowa, Iowa City, IA (XXXVI) W. H. Coil
J. Donelson, Genetic Rearrangement and the Basis of Antigenic
Variation in African Trypanosomes. PO=G. D. Cain
ST=G. Garoian H=K. F. Forton L=D. Woodmansee
S=Helminth Immunology
- 1985 Ohio State Univ., Columbus, OH (XXXVII) B. T. Ridgeway
K. D. Murrell, Epidemiology of Swine Trichinosis: Could Both
Zenker and Leuckart be Right? PO=P. W. Pappas
ST=G. Garoian H=R. L. Lavy L=K. F. Forton S=Physiological
Ecology of Parasites

- 1986 Univ. of Missouri, Columbia, MO (XXXVIII) G. T. Cain
R.C. Tinsley, Correlation of Host Biology in Polystomatid
Monogenea. H=M. C. Lewis H=I. G. Welsford L=Leiby
PO=L. Uhazy, ST=D. Miller, S=Gene Expression in Helminth
Development
- 1987 Southern Illinois Univ., Edwardsville, IL (XXXIX) P. M. Nollen
Kevin Kazacos, Baylisascaris nematodes — Their biology and
role in larva migrans disease. PO=D. Myer ST=D. Miller
S=Modern Systematics in Parasitology, H=? L=?

FUTURE MEETINGS

- 1988 Miami University, Oxford, Ohio (XL)
- 1989 Purdue University, Ind (XLI)
- 1990 Vermillion, S. D. (XLII)
- 1991 ?

A M C O P

39th Annual Meeting
at
Southern Illinois University at Edwardsville

June 4-6, 1987

Registration

Participants are urged to Preregister for the annual meeting by completing the registration form provided and returning it immediately with payment as indicated on the form. The deadline for receipt of preregistration by mail is Friday, May 29, 1987. All materials for preregistrants can be picked up at the Registration Table in the Foyer of the Communications Building on Friday (3rd Floor of Science Building on Saturday).

On-site registration will be conducted during Friday and Saturday.

Parking

Attendees please use the Visitor's Parking Lot just west of the University Center and south of the Communications Building.

Accommodations

Use one of the enclosed housing accommodations forms to make your own choice of housing.

University Conference Housing (15 minute walk to campus core)

Only 7 furnished 2-bedroom apartment units (28 beds) are available in Tower Lake Apartments. Students will be given preference. Charge cards may be used. Refrigeration available but no cooking. Complete the attached reservation form. Deadline for reservations or cancellations, May 15.

Edwardsville Days Inn (3 miles southwest of Campus at 1270 and Illinois Hwy 157)

All rooms will cost \$32.00 per night regardless of the number of persons in the room (maximum 4 per room). Rooms have either one king-size bed or two double beds. Specify preference on registration form. There is indoor and outdoor swimming, a dining room, and a night club available.

Camping on the SIUE Campus

The Bubble Gym dressing rooms with showers and restrooms will be available for campers.

Write or call Donal Myer,
Box 1650, SIUE
Edwardsville, IL 62026
(618) 692-3170

CONFIRM BY MAY 29

Spouses' Program
A M C O P
June 4-6, 1987
Southern Illinois University at Edwardsville, Illinois

St. Louis Tour - Friday, June 5, 1987

1. See the famous St. Louis Arch, ride the tram to the top for a 30 mile panoramic view and/or visit the Arch Museum and the Riverfront area.
2. Visit the new/old St. Louis Union Station complex. Shop in the numerous specialty stores; eat lunch in any of the many small specialty-type food shops or restaurants of your choice; and, tour the complex to view the beautifully renovated historic railroad station and the new and renovated Omni Hotel.

Schedule:

8:45 a.m. - meet in the Communications Building foyer. The bus will leave from the parking lot in back (West) of the Communications Building at 9:00 a.m. Our first stop will be the Arch and Riverfront Area.

11:00 a.m. - meet back at the tour bus. The next stop will be the Union Station.

2:30 p.m. - meet back at the tour bus to return to the campus.

3:00 p.m. - arrival back at the SIUE University Center.

Cost:

Transportation - \$4.00 per person.

Arch tram ride - \$1.50 per person.

Lunch - Your choice and cost.

Registration Form for Spouse's Program

Please return this form to:

Donal G. Myer
School of Sciences, Box 1650
Southern Illinois University at Edwardsville
Edwardsville, IL 62026

Registration by June 1 will help us plan the transportation (pay at start).

Name(s) _____

Institution _____

Address _____

Telephone _____ () _____

Total amount enclosed \$ _____

Travel

Southern Illinois University at Edwardsville is located approximately 20 miles northeast of St. Louis, Missouri. For those arriving by car, SIUE is just north of I-270 near I-55, I-70, and Illinois Highways 157 and 143. For private planes the nearest airport is the St. Louis Regional Airport at Bethalto, Illinois; about 10 miles from the campus. The St. Louis Lambert International Airport is about 29 miles from SIUE. Convenient commercial transportation is not available from the airport. Air travelers should make arrangements in advance for transportation to the campus with Donal Myer (618) 692-3170.

Spouse's Activities

A day in St. Louis is planned for spouses on Friday, June 5. Starting at 8:45 a.m. it will include a tour of the St. Louis Gateway Arch and several hours at St. Louis Union Station for lunch, sight-seeing, and shopping. Those interested are requested to complete and return the registration form provided by June 1.

Food

Food service is available on the campus only in the University Center where there are a cafeteria and a fast food restaurant on the ground floor and a dining room, The University Club, on the second floor. A list of area restaurants will be provided at the registration desk.

Banquet: Friday, June 5, 6:30 p.m., 2nd Floor of University Center. The annual banquet will be a buffet dinner following a Social Hour from 6:00 to 7:00 p.m. Tickets for the banquet, \$10.00 each, must be purchased in advance (by Pre-registration).

Abstracts

Abstracts are due to Dr. Donald Miller at SIU at Carbondale by May 1. See previous mailing for the abstract form.

REGISTRATION FORM

ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS
(AMCOP XXXIX)
JUNE 4-6, 1987

This registration form must be received no later than May 29, 1987.

NAME: _____

ADDRESS: _____

Business Phone () _____ Home Phone () _____

Banquet ticket(s) for June 5, 1987:

No. _____ at \$10.00 each. \$ _____

Registration fee:

Student Member (\$3.00). \$ _____

Professional Member (\$6.00). \$ _____

Membership Fee (\$3.00, if you haven't paid). . . . \$ _____

TOTAL AMOUNT ENCLOSED \$ _____

COMPLETE ONE FORM FOR EACH INDIVIDUAL ATTENDING AMCOP XXXIX

Make checks or money orders payable to AMCOP

Return the completed form and fees to:

AMCOP
c/o Donal G. Myer
School of Sciences, Box 1650
Southern Illinois University at Edwardsville
Edwardsville, IL 62026

-----officer use only-----

C1991 Date _____ Amount _____

cc pc mo chg

Days Inn Housing Reservation Form

The Days Inn of Edwardsville is providing a special group rate of \$32.00 per room per night. Rooms have either one king-size bed or two double beds. Specify below your preference and indicate the number of persons for the room.

GROUP NAME AMCOP

DATE OF ARRIVAL _____

ROOMS _____ NAME _____

RM. TYPE _____ ADDRESS _____

A-KINGSIZE _____

C-2 DBL BEDS _____ PHONE # _____

NIGHTS _____ CREDIT CARD OR 6 PM ARRIVAL _____

CHILD _____

ADULTS _____ SPECIAL REQ. _____



Return by May 15, 1987

For additional information call Bonnie Burris, General Manager, AC 618/656-3000.

Southern Illinois University
Conference Housing Rates & Service

Tower Lake Housing is located 15 minutes walking distance from the academic core of the 2700 acre campus. The units are two bedroom apartments with two single beds in each bedroom. There is a living room, bath and central air conditioning in each apartment. The units are grouped with eight apartments in each building with an open stairwell. Each apartment has a kitchen with a range and refrigerator for use by residents staying more than 14 days. Long-term residents should ask for additional particulars.

Rates

Linen Service:

Bed Linen - beds made prior to arrival, exchanged weekly at central point.
Towels - Two towels and wash cloth provided and exchanged daily.
Pillow & blanket - provided
Bathroom - cleaned weekly unless otherwise agreed

1 person per apartment - \$24.00 total
2 persons per apartment - \$30.00 total or \$15.00 each
3 persons per apartment - \$36.00 total
4 persons per apartment - \$40.00 total or \$10.00 each

Minimum Service Rates:

Bed Linen - not provided
Towels - not provided
Pillows/Blanket - not provided
Bathroom - cleaned weekly

1 person per apartment - \$21.00 total
2 persons per apartment - \$24.00 total
3 persons per apartment - \$27.00 total
4 persons per apartment - \$28.00 total

* - No partial linen service

Tower Lake Housing Reservation Form

Mail the reservation form to Deanna Hammon, Box 36 1256, Commons Bldg., SIUE, Edwardsville, IL 62026-1001 at least three weeks prior to the reservation date (May 15, 1987). Checks should be made payable to SIUE - Conference Housing.

Name of Conference: **AMCOP**

School / Institution / Private _____ School of Sciences _____

Date of Request: _____ Telephone # _____

Person to receive confirmation _____

Address _____

Number in party _____ Arrival date _____ time _____ am/pm

Departure date _____ (check out time is at 12:00, noon)

Apply for either of the following:

Full Service - see attached sheets on rates

Number of rooms needed (type)	Rates per night X no. of nights	Total
_____ Single	\$24.00 X _____ =	_____
_____ Double	\$30.00 X _____ =	_____
_____ Triple	\$36.00 X _____ =	_____
_____ Quad	\$40.00 X _____ =	_____

Minimum Service - nothing included

_____ Single	\$21.00 X _____ =	_____
_____ Double	\$24.00 X _____ =	_____
_____ Triple	\$27.00 X _____ =	_____
_____ Quad	\$28.00 X _____ =	_____

Identification Verification

Payment amount:

Building Manager check in _____ date/time

Building Manager check out _____ date/time

For additional information call Deanna Hammon (AC 618) 692-2962.