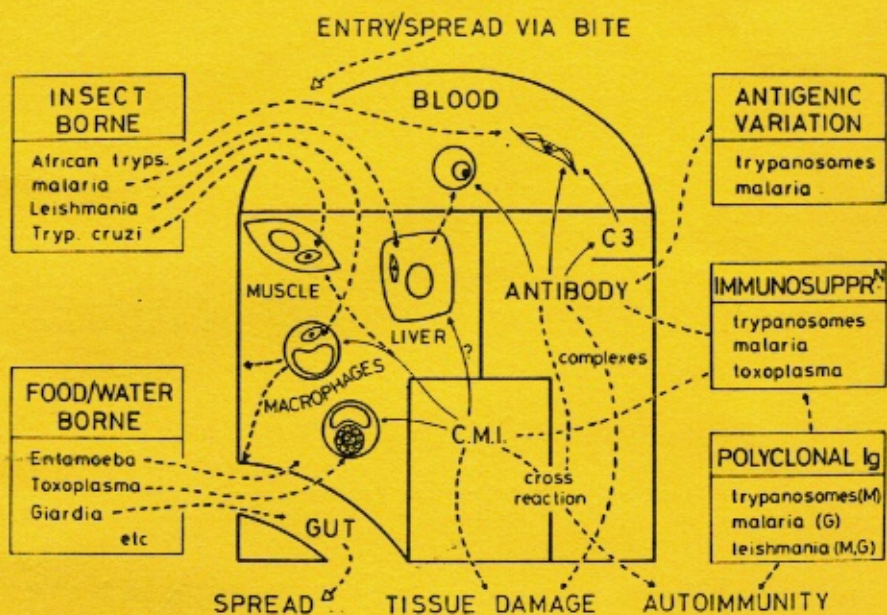


ANNUAL MIDWESTERN CONFERENCE  
OF PARASITOLOGISTS

## Immunity to protozoa



EASTERN ILLINOIS UNIVERSITY  
CHARLESTON      JUNE 4-6, 1981

Affiliate American Society of Parasitologists

CONTENTS

|                                    |    |
|------------------------------------|----|
| Program . . . . .                  | 1  |
| Demonstrations. . . . .            | 2  |
| Paper Presentations . . . . .      | 3  |
| Abstract                           |    |
| Demonstrations . . . . .           | 5  |
| Papers . . . . .                   | 8  |
| AMCOP XXXII 1980 Minutes . . . . . | 16 |
| 1981 Members . . . . .             | 19 |
| The Onchosphere . . . . .          | 25 |
| Notes . . . . .                    | 26 |
| Registration Form . . . . .        | 27 |
| EIU Campus Map . . . . .           | 29 |

OFFICERS

|                               |  |
|-------------------------------|--|
| Presiding Officer . . . . .   | Dr. Donald M. Miller<br>Southern Illinois University |
| Program Officer . . . . .     | Dr. Bill T. Ridgeway<br>Eastern Illinois University  |
| Secretary-Treasurer . . . . . | Dr. George Garoian<br>Southern Illinois University   |

ACKNOWLEDGEMENTS

AMCOP expresses its gratitude to the following organizations for their contributions to this 33rd meeting to make it enjoyable and meaningful.

ELI LILLY COMPANY  
ANN ARBOR BIOLOGICAL CENTER  
LIFE SCIENCES DIVISION OF  
EASTERN ILLINOIS UNIVERSITY

BRING THIS PROGRAM WITH YOU

(74 members attended)  
plus some spouses

General Program Schedule

|        |                        |   |
|--------|------------------------|---|
| June 4 | 4:00 p.m. - 11:30 p.m. | <i>Check In &amp; Registration</i><br>Stevenson Tower   |
| June 5 | 8:00 a.m. - 11:00 a.m. | <i>Registration - Coffee, Juice, Rolls</i><br>Lobby, Phipps Lecture Hall, Science Building  |
|        | 9:00 a.m. - 11:30 a.m. | <i>General Session - Contributed Papers</i><br>Phipps Lecture Hall, Science Building  |
|        | 1:00 p.m. - 3:00 p.m.  | <i>Symposium - Immunity to Protozoan Parasites</i><br>Phipps Lecture Hall<br>"Immunity to Plasmodia" - Dr. Julius P. Kreier<br>Department of Microbiology, Ohio State University<br>"Immunity to African Trypanosomas" - Dr. John M. Mansfield<br>Department of Microbiology, Medical School,<br>University of Louisville<br>"Immunologic Studies with Cell Culture Derived <i>Babesia</i> <u>bovis</u><br>Antigens" - Dr. Miodrag Ristic<br>College of Veterinary Medicine, University of Illinois |
|        | 3:00 p.m. - 4:30 p.m.  | <i>Demonstration Session</i><br>Rooms 101 - 102, Life Science Building  |
|        | 4:30 p.m.              | <i>Business Meeting</i><br>Phipps Lecture Hall, Science Building  |
|        | 6:00 p.m.              | <i>Social Hour (Cash Bar)</i><br>Grand Ballroom, Martin Luther King Student Union   |
|        | 7:00 p.m.              | <i>Banquet - Buffet</i><br>Grand Ballroom, Student Union<br>Speaker, Dr. George D. Cain, Department of Zoology,<br>University of Iowa - "Antigenic Variation: New<br>Techniques Applied to Old Problems"  |
| June 6 | 8:00 a.m. - 9:00 a.m.  | <i>Coffee, Juice, Rolls</i><br>Lobby, Phipps Lecture Hall, Science Building   |
|        | 9:00 a.m. - 11:00 a.m. | <i>General Session - Contributed Papers</i><br>Phipps Lecture Hall, Science Building  |
|        | 11:00 a.m.             | <i>Business Meeting</i><br>Phipps Lecture Hall, Science Building  |

REGISTRATION AND ROOM REQUEST FORM ON PAGE 27

Cover diagram from Immunology at a Glance by J. H. L. Playfair.  
Blackwell Scientific Publications, 1979.

DEMONSTRATIONS

(\* In competition for Herrick Award)

- 1.\* SCANNING ELECTRON MICROSCOPY OF THE ILEUM OF EIMERIA VERMIFORMIS-INFECTED MICE. BYRON L. BLAGBURN, COLLEGE OF VETERINARY MEDICINE, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS 61801.
2. THE CAT FUR MITE, LYNXACARUS RADOVSKYI (ACARINA:LISTROPHORIDAE), RECENTLY INTRODUCED TO U.S.A. J. H. GREVE, DEPARTMENT OF VETERINARY PATHOLOGY, IOWA STATE UNIVERSITY, AMES 50011.
- 3.\* ELECTRON MICROSCOPY OF EGG SHELL FORMATION IN HALIPEGUS ECCENTRICUS (TREMATODA: HEMIURIDAE). JON M. HOLY, DEPARTMENT OF BIOLOGY, UNIVERSITY OF WISCONSIN-EAU CLAIRE, EAU CLAIRE, WI 54701.
4. SPIRONOURAN NEMATODES FROM THE STOMACH OF THE MALAYAN BOX TURTLE (CUORA AMBOINENSIS). R. A. KUYE AND B. T. RIDGEWAY, DEPARTMENT OF ZOOLOGY, EASTERN ILLINOIS UNIVERSITY, CHARLESTON, ILLINOIS. 61920.
5. PROTEROMETRA MACROSTOMA (DIGenea): FINE STRUCTURE OF THE TEGUMENTS OF LARVAE AND ADULTS. GARY L. UGLEM AND KOOK J. LEE, PHYSIOLOGY GROUP, BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KENTUCKY 40506.
6. INSTRUCTIONAL USES OF PARASITOLOGICAL MATERIALS. ELIZABETH L. WAPFLE, DEPARTMENT OF BIOLOGY, EASTERN MICHIGAN UNIVERSITY, YPSILANTI AND ANN ARBOR BIOLOGICAL CENTER, ANN ARBOR, MI 48103.
- 7\* HOST RANGE FOR CEREBROSPINAL NEMATODIASIS AND VISCERAL LARVA MIGRANS DUE TO BAYLISASCARIS PROCYONIS. W. L. WIRTZ, DEPARTMENT OF VETERINARY MICROBIOLOGY, PURDUE UNIVERSITY, WEST LAFAYETTE, IN 47907.

(Additional demonstrations will be accepted as space permits through Registration, June 5, 1981).

PAPER PRESENTATIONS

(\* In competition for LaRue Award)

It is hoped that each paper can be presented in ten minutes.

8. THE EFFECTS OF VARIOUS NATURALLY-OCCURRING SUBSTANCES ON THE SURVIVAL OF SCHISTOSOMA MANSONI MIRACIDIA. LEONARD D. WADE AND PAUL M. NOLLEN, DEPT. OF BIOLOGICAL SCIENCE, WESTERN ILLINOIS UNIVERSITY, MACOMB, ILL.

- 9.\* RHYTHMS OF LOCOMOTORY ACTIVITY AND EMERGENCE OF SCHISTOSOMA MANSONI CERCARIAE FROM BIOMPHALARIA GLABRATA SNAILS. CAROL L. WILLIAMS, DEPARTMENT OF ECOLOGY AND BEHAVIORAL BIOLOGY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS. 55455
- 10.\* CARBONIC ANHYDRASE: ACTIVITY AND EFFECTS OF INHIBITION IN SCHISTOSOMA MANSONI-INFECTED BIOMPHALARIA GLABRATA. R. A. SIDNER, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, CINCINNATI, OHIO 45221
- 11.\* COMPUTER SIMULATION OF SCHISTOSOMA MANSONI MIRACIDIA BEHAVIOR. GORDAN G. FLORIN, DEPARTMENT OF ECOLOGY AND BEHAVIORAL BIOLOGY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS. 55455
- 12.\* CLINICAL PREVALENCE OF THE CANINE HEARTWORM DIROFILARIA IMMITIS LEIDY, 1856 IN THE MICHIANA AREA. J. H. ADAMS\* AND B. L. BLAGBURN, UNIVERSITY OF ILLINOIS. 61801
- 13.\* INCIDENCE OF BAYLISASCARIS PROCYONIS IN RACCOON SCATS FROM AN URBAN AND A RURAL COMMUNITY. J. E. JACOBSON, DEPARTMENT OF FORESTRY AND NATURAL RESOURCES, PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA. 47907
- 14.\* ECOLOGICAL AND PHYLOGENETIC INFLUENCES ON HOST SPECIFICITY. GUNTHER O. W. KRUSE, HAROLD W. MANTER LABORATORY, UNIVERSITY OF NEBRASKA STATE MUSEUM, LINCOLN, NEBRASKA. 68588
- 15.\* SEASONAL DISTRIBUTION AND ECOLOGY OF THREE HELMINTH SPECIES INFECTING CARP IN NW IOWA. D. R. SUTHERLAND, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES. 50011
- 16.\* MYXOBOLUS OSBURNI (MYXOZOA:MYXOSPOREA) FROM THE PANCREAS OF THE PUMPKINSEED, LEPOMIS GIBBOSUS (LINNAEUS), IN IOWA. K. M. INGRAM, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES, IOWA. 50011
- 17.\* STRUCTURE AND EXCYSTATION OF SARCOCYSTIS MURIS SPOROCYSTS USING LIGHT AND ELECTRON MICROSCOPY. B. MOHAMAD-PANAHI, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES, IOWA. 50011
- 18.\* RENAL COCCIDIOSIS IN CANADA GEESE OF THE MISSISSIPPI VALLEY FLYWAY. B. N. TUGGLE, NATIONAL WILDLIFE HEALTH LABORATORY, MADISON, WISCONSIN. 53706
19. TIME LAPSE PHOTOGRAPHY OF CLEAVAGE OF ASCARIS LUMBRICOIDES SUUM. BENEDICT J. JASKOSKI, DEPARTMENT OF BIOLOGY, LOYOLA UNIVERSITY, CHICAGO, ILLINOIS. 60626
- 20.\* SOME ASPECTS OF IMMUNE RESPONSES OF MICE TO INFECTION WITH SARCOCYSTIS MURIS. C. F. GUPTILL-YORAN, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES. 50011

21. FATAL CEREBROSPINAL NEMATODIASIS AND VISCERAL LARVA MIGRANS IN SQUIRREL MONKEYS INFECTED WITH *BAYLISASCARIS PROCYONIS*. K. R. KAZOCAS\*, W. L. WIRTZ, C. S. CHRISTMAS, DEPT. OF VETERINARY MICROBIOLOGY, PATHOLOGY AND PUBLIC HEALTH, PURDUE UNIVERSITY, W. LAFAYETTE, IN. 47907.
22. CHEMOTAXIS OF MALE *NIPPOSTRONGYLUS BRASILIENSIS* TO CYCLIC NUCLEOTIDES. RICHARD M. NORDSTROM, JONI B. WARD, AND LEON W. BONE, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILLINOIS. 62901
23. EFFECTS OF JUVENILS ON FECUNDITY AND LARVAL DEVELOPMENT OF *NIPPOSTRONGYLUS BRASILIENSIS*. G. H. GLASSBURG, M. PAPADEMETRIOU, AND L. W. BONE, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILLINOIS. 62901
24. IN VITRO EXCYSTMENT OF THE BLACK SPOT TREMATODE *NEASCUS PYRIFORMIS* CHANDLER, 1951 (TREMATODA: DIPLOSTOMATIDAE). A. D. JOHNSON, D. J. SCHROEDER AND K. H. MOHAMMAD, DEPARTMENT OF BIOLOGY, UNIVERSITY OF SOUTH DAKOTA, VERMILLION. 57069
25. ECHINOCOCCOSIS ON ISLE ROYALE. LEWIS PETERS, MARK WOLOWIEC, AND L. DAVID SIBLEY, DEPARTMENT OF BIOLOGY, NORTHERN MICHIGAN UNIVERSITY, MARQUETTE, MICHIGAN. 49855
26. PARASITE FAUNA IN SOME WISCONSIN LAKES. OMAR M. AMIN, SCIENCE DIVISION, UNIVERSITY OF WISCONSIN PARKSIDE, KENOSHA, WI. 53141
27. A COLEOPTERAN ECTOPARASITE (*PLATYPSYLLUS CASTORIS* RITSEMA) OF THE BEAVER: AN EXTENSION OF ITS DISTRIBUTION AND A REVIEW OF ITS LIFE HISTORY. R. D. DAVIS AND M. A. GOODRICH, DEPARTMENT OF ZOOLOGY, EASTERN ILLINOIS UNIVERSITY, CHARLESTON, ILL. 61920

## ABSTRACTS

## DEMONSTRATIONS

1. SCANNING ELECTRON MICROSCOPY OF THE ILEUM OF *EIMERIA VERMIFORMIS*-INFECTED MICE. BYRON L. BLAGBURN, COLLEGE OF VETERINARY MEDICINE, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS 61801
- Microarchitectural changes in the ileum of *Eimeria vermiformis*-infected mice were studied with a Cambridge Stereoscan scanning electron microscope. Laboratory *Mus musculus* were inoculated by stomach tube with 5,000, 10,000, 20,000 and 40,000 sporulated oocysts of *E. vermiformis*. Sections of the lower ileum were removed approximately 1 cm from the ileo-cecal valve 4, 6, 8, 10, 14, and 25 days after inoculation (DAI). The samples were opened longitudinally, rinsed with phosphate buffer (.1M; pH 7.4) and fixed at 22°C for 24 hr in 3% buffered glutaraldehyde. After treatment with 16% glycerol to remove the surface layer of mucus, the tissues were post-fixed at 22°C for 1 hr in buffered osmium tetroxide, processed with osmium-tetroxide-thiocarbonylazide-osmium tetroxide (OTO technique), dehydrated in standard dilutions of ethanol, critical point dried in CO<sub>2</sub>, and mounted on aluminum stubs for viewing. Additional samples were cryofractured in ethanol. Villous atrophy, fusion, and hypertrophy were observed. Shortening and thickening of the villi were evident at 4 DAI. Severe villous atrophy was observed in several tissue samples 6 DAI. Villous hypertrophy, caused primarily by thickening of the lamina propria, was seen in both surface and cryofracture profiles at 8 DAI. Erosion of the villous surface was most severe 8 and 10 DAI and generally involved only the tips of the villi. Tissue damage did not seem to correlate directly with the number of oocysts given. Resolution of the lesions had begun by 14 DAI. The only evidence of infection at 25 DAI was the presence of some slightly broadened villi. Segmented filamentous microorganisms were present in many tissue samples; they were seen on all days except during peak patency (8 and 10 DAI).
2. THE CAT FUR MITE, *LYNXACARUS RADOVSKYI* (ACARINA:LISTROPHORIDAE), RECENTLY INTRODUCED TO U.S.A. J. H. GREVE, DEPARTMENT OF VETERINARY PATHOLOGY, IOWA STATE UNIVERSITY, AMES 50011.

The listrophorid, *Lynxacarus radovskyi* Tenorio 1974, has been recovered from 2 cats from extreme southern Florida. This extends the range of the mite from its previously recorded locations of Puerto Rico, Hawaii, Fiji, and Australia. It is believed that immigrants from Caribbean areas introduced the infestation. This species and *L. morlani* Radford 1951 from *Lynx rufus* are the only representatives of the genus on felids. The mite clasps the hair shafts and is found in the pelage rather than on the skin surface. Hair from infested cats is easily epilated. Dermatitis and pruritus are not commonly seen with this infestation.

6

ABSTRACTS

3. ELECTRON MICROSCOPY OF EGG SHELL FORMATION IN HALIPEGUS ECCENTRICUS (TREMATODA: HEMIURIDAE). JON M. HOLY, DEPARTMENT OF BIOLOGY, UNIVERSITY OF WISCONSIN-EAU CLAIRE, EAU CLAIRE, WI 54701.

Reproductive organs involved in egg shell formation in the hemiurid trematode Halipegus eccentricus Thomas 1939 were examined with the electron microscope. Vitelline cells contributed egg shell protein but little nutritive material. The Mehlis' gland consisted of two cell types, one producing a dense secretion (DB cells), the other a membranous secretion (MB cells). The more numerous MB cells produced the bulk of the Mehlis' gland secretion in the form of membranous residues which adhered to the globules of shell protein released by the vitelline cells. Within the ootype, vitelline cells coalesced releasing shell protein around the oocyte to form the egg shell. As the developing egg passed from the ootype to the proximal uterus, the shell became more regular and exhibited narrow channels which extended across and opened on both sides of the egg shell. The parenchyma adjacent to the epithelium of the proximal uterus was filled with large glycogen reserves. It is suggested that the egg may derive its nutrition from these reserves through the shell channels rather than from products elaborated by the vitelline cells. The egg filament was formed by peristaltic sculpturing of the pliable shell material as the egg passed from the ootype into the proximal uterus. Eggs are fully embryonated when laid.

4. SPIRONOURAN NEMATODES FROM THE STOMACH OF THE MALAYAN BOX TURTLE (CUORA AMBOINENSIS). R. A. KUYE AND B. T. RIDGEWAY, DEPARTMENT OF ZOOLOGY, EASTERN ILLINOIS UNIVERSITY, CHARLESTON, ILLINOIS. 61920

Nematodes of the genus Spironoura spp. were extracted from the stomachs of box turtles (Cuora amboinensis) collected in the Pahang Province of Malaysia. The measurements & morphological details of the worms were compared to those of described species in the genus. Specimens examined varied so widely with regard to key diagnostic features that a further taxonomic analysis was undertaken.

5. PROTEROMETRA MACROSTOMA (DIGENEA): FINE STRUCTURE OF THE TEGUMENTS OF LARVAE AND ADULTS. GARY L. UGLEM AND KOOK J. LEE, PHYSIOLOGY GROUP, BIOLOGICAL SCIENCES, UNIVERSITY OF KENTUCKY, LEXINGTON, KENTUCKY 40506

The sugar transporting capacities of larval and adult Proterometra macrostoma have been reported by Uglem (1980; J. Parasitol. 66: 748-758). The teguments of these stages were examined for structural specializations using trans-

7

ABSTRACTS

mission electron microscopy. The free surface of radiae is amplified due to the presence of channels giving the tegument a highly vacuolated appearance in thin sections. The channels lie perpendicular to the basement membrane and open to the outside by small pores. A dense population of mitochondria is located in close association with the bases of the channels. The tegument is amplified secondarily by folds and small unbranched microvilli. The tegument of the adult is thick and relatively devoid of such specializations for absorption. In addition to lacking mitochondria it also has a prominent glycocalyx suggesting a protective function. The cercarial tegument represents a transitional stage with regard to both structural specialization and sugar transport capacity. Thus the structural features correlate well with the absorptive properties of the larval tegument during development to an adult.

(Supported by grants from the NSF, PCM78-16088, and NIH Biomedical Sciences Support, 5-S05-RR07115-07.)

6. INSTRUCTIONAL USES OF PARASITOLOGICAL MATERIALS.

ELIZABETH L. WAFFLE, DEPARTMENT OF BIOLOGY, EASTERN MICHIGAN UNIVERSITY, YPSILANTI AND ANN ARBOR BIOLOGICAL CENTER, ANN ARBOR, MI 48103.

7. HOST RANGE FOR CEREBROSPINAL NEMATODIASIS AND VISCERAL LARVA MIGRANS DUE TO BAYLISASCARIS PROCYONIS. W.L. WIRTZ, DEPARTMENT OF VETERINARY MICROBIOLOGY, PURDUE UNIVERSITY, WEST LAFAYETTE, IN 47907.

Natural outbreaks of cerebrospinal nematodiasis and visceral larva migrans due to Baylisascaris procyonis have occurred in a number of animal species including squirrels, rabbits, woodchucks, chickens, and quail. To investigate these syndromes and the host range susceptible to this parasite, graded doses of embryonated B. procyonis eggs were administered per os to various experimental animals. Cerebrospinal nematodiasis and visceral larva migrans resulted, in ducks, chickens, hamsters, mice, rats, squirrels, ferrets, and squirrel monkeys. All animal species exhibited severe central nervous signs including ataxia, torticollis, and circling. Gross lesions observed varied among the species. The avian species had no gross lesions while the mammals had pleural hemorrhages and numerous larval granulomas in various tissues. Histologically, evidence of moderate to severe damage was present in the brains of all animals and consisted primarily of malacic-inflammatory tracks and accompanying necrosis. Baermannization of avian brains yielded low numbers of larvae (Avg. 6). Larvae recovered from the mammalian species ranged from 1-6 in the rats to 149-157 in the squirrels. The hamsters, mice, squirrels and squirrel monkeys had a mortality rate of 100%. The other species exhibited mortality rates of 34-75%. B. procyonis larvae produce cerebrospinal nematodiasis and visceral larva migrans in a variety of animals, however, the migration patterns and syndrome parameters are not identical in all species.

ABSTRACTS

PAPERS

8. THE EFFECTS OF VARIOUS NATURALLY-OCCURRING SUBSTANCES ON THE SURVIVAL OF SCHISTOSOMA MANSONI MIRACIDIA. LEONARD D. WADE AND PAUL M. NOLLEN, DEPT. OF BIOLOGICAL SCIENCE, WESTERN ILLINOIS UNIVERSITY, MACOMB, ILL.

Miracidia of Schistosoma mansoni were exposed to various dilutions of two bacterial cultures. These were Bacillus sphaericus, which has larvicidal activity toward various species of mosquitoes, and Bacillus moratai, a species found to be inactive against mosquitoes and black flies. Cultures of B. sphaericus and B. moratai diluted 1:10 and 1:50 markedly shortened the normal life span of miracidia. However, miracidia subjected to media in which the bacteria were growing lived longer than those in pond water controls suggesting they were capable of absorbing energy-providing substances from their environment. Water in which snails had been sequestered (snail-conditioned water) had no effect on miracidial longevity, but did cause a short-lived and frenzied non-directional turning activity. The lethal action of the bacterial cultures was considered too slow for practical use as a biological control agent for miracidia.

9. RHYTHMS OF LOCOMOTORY ACTIVITY AND EMERGENCE OF SCHISTOSOMA MANSONI CERCARIAE FROM BIOMPHALARIA GLABRATA SNAILS. CAROL L. WILLIAMS, DEPARTMENT OF ECOLOGY AND BEHAVIORAL BIOLOGY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS. 55455

The relationship between locomotory activity and emergence of Schistosoma mansoni cercariae from Biomphalaria glabrata snails was examined. One group of snails was maintained in individual containers for 70 days under a 6<sup>00</sup>-18<sup>00</sup> photoperiod. Another group of snails was maintained in individual containers for the same period of time under continuous light. One half of the snails in each group were exposed to 5-10 S. mansoni miracidia per snail on day 10. Cercarial release and locomotory activity were measured on day 50. Locomotory activity was determined by taking time lapse films of the snails and then analyzing the film with a film analyzer. Cercarial release was measured by counting the number of cercariae released during consecutive three hour intervals in a 24 hour period. Snails maintained in the 6<sup>00</sup>-18<sup>00</sup> photoperiod had increased locomotory activity at night while snails maintained in continuous light showed no discernible pattern of locomotory activity. Ninety-five per cent of the cercariae released by snails under a 6<sup>00</sup>-18<sup>00</sup> photoperiod emerged between the hours of 6<sup>00</sup>-18<sup>00</sup> while only 55% of the cercariae released by snails in continuous light emerged during this time. There was no significant difference in the number of cercariae released by the snails in each group and there was no obvious relationship between the locomotory activity and cercarial release by snails in either group.

ABSTRACTS

10. CARBONIC ANHYDRASE: ACTIVITY AND EFFECTS OF INHIBITION IN SCHISTOSOMA MANSONI-INFECTED BIOMPHALARIA GLABRATA. R. A. SIDNER, DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CINCINNATI, OHIO. 45221.

Our previous studies have shown that the carbonic anhydrase inhibitor, acetazolamide (AZA), suppresses shell growth of B. glabrata. Further, AZA was shown to alter hemolymph Ca and Cl ions, and reduce cercarial output of S. mansoni-infected snails. The current study demonstrates that AZA treatment (0.01 mM) results in marked hemolymph alkalosis (pH 7.9 vs 7.7) and that carbonic anhydrase (CA) activity is present in the hepatopancreas (22.8 umoles p-nitrophenol/min/g protein) and mantle (15.6), but is absent from hemolymph. Patent infection with S. mansoni did not alter levels of CA activity in the mantle or hepatopancreas, but activity was enhanced in snails incubated in distilled water or 7% artificial seawater. Snail hemolymph osmolality, 53 days post-infection, was reduced (92 vs 103 mOs/kg) due primarily to declines in Na (42.6 vs 49 mM) and Cl (40.5 vs 48 mM) and to a lesser extent Ca (13.1 vs 16.5 mg%). We infer that carbonic anhydrase plays a vital role in shell formation, electrolyte balance, and acid-base regulation in B. glabrata and that its inhibition indirectly causes reduction of cercarial output by altering hemolymph composition and/or snail metabolism. Alternatively, CA inhibitors may act directly on a putative parasite CA, the existence of which is suggested by the unchanged CA activity observed in S. mansoni-infected hepatopancreas tissue.

11. COMPUTER SIMULATION OF SCHISTOSOMA MANSONI MIRACIDIA BEHAVIOR. GORDON G. FLORIN, DEPARTMENT OF ECOLOGY AND BEHAVIORAL BIOLOGY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS.

Behavioral parameters from observations of Schistosoma mansoni miracidia were simulated using a programmable Hewlett-Packard desktop calculator. Speed and turning angles were chosen using a piecewise inverse method. Turning distances were exponentially distributed. Departure angles from surfaces were normally scattered about a logarithmic relationship between arrival and departure angles. Four random number generators were used to produce five independent sets of trials for each of three investigations.

Comparison of real and simulated miracidia under parallel conditions produced only one significant difference (p = 0.013) from twenty statistical tests.

Previous work (Chernin and Dunavan, 1962) which showed increased miracidial concentrations near the perimeters of circular dishes was modeled. Similar results were obtained, showing that attraction to solid surfaces is probably not involved.

Modeling of unobstructed swimming found that 90% of simulated miracidia dispersed less than one meter in thirty minutes.

ABSTRACTS

12. CLINICAL PREVALENCE OF THE CANINE HEARTWORM *DIROFILARIA IMMITIS* LEIDY, 1856 IN THE MICHIANA AREA. J. H. ADAMS\* and E. L. BLAGBURN, UNIVERSITY OF ILLINOIS.

The survey for *Dirofilaria immitis* was submitted for 1978 to veterinarians in St. Joseph and Elkhart Counties, Indiana and Berrien, Cass and Van Buren Counties, Michigan. Modified Knott's test, membrane filter and microhematocrit technique were used for diagnosis. The prevalence of infection 6.3% represented 125 positives of 1985 dogs examined. Males had a higher prevalence of infection 7.7% (76 of 981) than females 4.9% (49 of 1004). Smaller animals had a much lower prevalence of infection 1.7% (8 of 491) than medium 6.8% (57 of 842) and large animals 9.2% (60 of 652). Dogs less than 3 years old had a prevalence of infection of 3.6% (24 of 664), dogs 3 to 7 years old 7.8% (75 of 966) and dogs older than 7 years 6.5% (23 of 355). Of the most common breeds the Collie, Great Dane and Irish Setter had the highest percentage of infected animals 21.3% (13 of 61), 17.2% (5 of 29) and 16.7% (14 of 84), respectively. Poodles and Cocker Spaniels had prevalences of infection of 1.1% (2 of 185) and 0% (0 of 52), respectively. Differences in hair length had no effect on the prevalence of infection. Large outdoor dogs were more often infected than small indoor dogs.

13. INCIDENCE OF *BAYLIASCARIS PROCYONIS* IN RACCOON SCATS FROM AN URBAN AND A RURAL COMMUNITY. J. E. JACOBSON, DEPARTMENT OF FORESTRY AND NATURAL RESOURCES, PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA. 47907

The incidence of *Baylisascaris procyonis* in an urban and a rural community, and the feasibility of monitoring this ascarid's incidence by collecting raccoon (*Procyon lotor*) scats were investigated. During October and November of 1980, 97 urban raccoon scats were collected within a 342 ha study area in West Lafayette, Indiana, and 121 rural raccoon scats were collected within a 299 ha study area 9.4 km west of the urban study area. Each scat's age was estimated to be less than or greater than one-week-old. The presence of *B. procyonis* in each scat was determined by using a fecal flotation method to identify eggs. Twenty-six of 97 (26.8%) urban scats and 37 of 121 (30.6%) rural scats contained *B. procyonis* eggs. Each scat with this ascarid was visually classified as having rare, few, moderate, many, or numerous eggs. The major occurrence of *B. procyonis* eggs was in levels rare to moderate, with 84.6% and 81.0% for the urban and the rural community, respectively. Monitoring the incidence of *B. procyonis* by collecting and analyzing raccoon scats appears to be a successful method which can be used in any area populated with raccoons.

14. ECOLOGICAL AND PHYLOGENETIC INFLUENCES ON HOST SPECIFICITY. GUNTHER O.W. KRUSE, HAROLD W. MANTER LABORATORY, UNIVERSITY OF NEBRASKA STATE MUSEUM, LINCOLN, NEBRASKA 68588 U.S.A.

Fifteen families of marine fishes are endemic to southern Australian and New Zealand waters. A small family, Arripidae, containing two species, *Arripis trutta* Whitley, and *A. georgeanus* (Cuvier and Valenciennes), was surveyed for trematode parasites in the South Australian Sea. The distribution of the arripids ranges from Western Australia to New Zealand crossing the eastern and western boundaries of the zoogeographical "Flindersian Province", in which South Australia is located. Newly described genera and species of trematodes support the endemicity of the host and lead to interesting implications in the zoogeography of the parasites.

ABSTRACTS

15. SEASONAL DISTRIBUTION AND ECOLOGY OF THREE HELMINTH SPECIES INFECTING CARP IN NW IOWA. D. R. SUTHERLAND, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES. 50011

Between June 1978 and February 1981, 518 *Cyprinus carpio* from the Little Sioux River and Lower Gar Lake, Dickinson Co., were examined for intestinal helminths. Length, weight, age and sex were determined for each fish. The intestinal tract of each carp was divided into eight sections of equal length. Numbers of each parasite species from every section were recorded. Data were statistically analyzed to ascertain correlations between parasite mix and host parameters. Site selection and intra- and inter-specific interactions of the three predominant helminths (*Khawia lowensis*, *Pomphorhynchus bulbocollis* and *Capillaria* sp.) were demonstrated. Between April 1979 and February 1981, carp of the Little Sioux River were examined monthly to determine if a seasonal periodicity was exhibited by any of the three helminths. Maturity and length of all *Khawia* and the sex of each *P. bulbocollis* were determined. A pronounced seasonal periodicity exists for *Khawia*. Recruitment of young cestodes occurs throughout spring, summer and fall. Egg production occurs primarily during summer and fall. Infection levels with *Khawia* are lowest during winter and early spring. Seasonal distribution was not observed for either *Pomphorhynchus* or *Capillaria*.

16. *MYXOBOLUS OSBURNI* (MYXOZOA:MYXOSPOREA) FROM THE PANCREAS OF THE PUMPKINSEED, *LEPOMIS GIBBOSUS* (LINNAEUS), IN IOWA. K.M. INGRAM, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES, IOWA 50011

119 (79.3%) of 150 pumpkinseed sunfish captured from June through September, 1980 from West Lake Okoboji, Iowa were infected with the myxozoan parasite *Myxobolus osburni*. Infection was characterized by a large multi-lobed cyst within pancreatic tissue adjacent to the gall bladder. Cysts contained encapsulated and free mature spore masses. Sporulating plasmodia were observed for the first time in an *M. osburni* infection. Plasmodial development within a cyst was typically synchronous. Inflammatory responses were observed in endocrine and exocrine tissue and were most severe in cysts containing free spore masses. Host response was characterized by pyknosis of endocrine cell nuclei, proliferation of fibroblasts and fibrosis, and leukocytic infiltration. Transmission electron microscopic studies of these cysts are in progress.

17. STRUCTURE AND EXCYSTATION OF *SARCOCYSTIS MURIS* SPOROCYSTS USING LIGHT AND ELECTRON MICROSCOPY. B. MOHAMAD-PANAHI, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES, IOWA 50011

Sporocysts of *S. muris* excysted when treated with bovine, feline and murine bile. The percentage of excystation was higher when trypsin was used with bile, but trypsin alone failed to excyst the sporocysts. Although excystation started at 27°C, the highest percentage of excystation was obtained at 39-42°C. The sporozoites started excysting as early as four minutes after treatment of the sporocysts with trypsin plus bile, and the number of excysted sporocysts increased rapidly in the first 30-60 minutes. The wall of *S. muris* sporocyst collapsed during excystation, and the sporozoites escaped randomly. The sporocyst

## ABSTRACTS

wall consisted of four curved plates. Each plate was triangular and was surrounded by the other three plates. Four major layers were seen in the sporocyst wall; also, liplike thickenings were observed around the edges of the plates.

18. RENAL COCCIDIOSIS IN CANADA GEESE OF THE MISSISSIPPI VALLEY FLYWAY, B. N. Tuggle, National Wildlife Health Laboratory, Madison, Wisconsin, 53706

The unsporulated oocysts and/or gametocytes of Eimeria clarkei (were) found in kidney tissue in 19 of 310 free-flying Canada geese randomly collected from three geographical locations in the Mississippi valley flyway, were considered to cause the death of one goose at Horicon Wildlife Refuge, Wisconsin. This marks the first report of E. clarkei as a renal coccidiosis in Canada geese. Fourteen of the 19 infected free-flying geese were immature and 6 were adults. In extreme cases infected kidneys were mottled in color and were often enlarged with minute (<1 mm) localized white foci on the surface of the organ. E. clarkei gametocytes most commonly infected tubular epithelial cells and often occurred extracellularly or within mononuclear inflammatory cells. Oocysts were often present in the lumen of tubules in areas contiguous with infected tubular cells. The pathologic damage to renal tubule cells caused by E. clarkei and a description of its gametocytes and oocysts will be discussed.

19. Time lapse photography of cleavage of Ascaris lumbricoides suum. BENEDICT J. JASKOSKI, DEPARTMENT OF BIOLOGY, LOYOLA UNIVERSITY, CHICAGO, ILLINOIS 60626

20. SOME ASPECTS OF IMMUNE RESPONSES OF MICE TO INFECTION WITH SARCOCYSTIS MURIS. C.F. GUPTILL-YORAN, DEPARTMENT OF ZOOLOGY, IOWA STATE UNIVERSITY, AMES. 50011

A ten-week experiment was conducted using mice infected with Sarcocystis muris to determine the presence and quantity of IgG in the serum and to assay for delayed-type hypersensitivity (DTH) using a footpad reaction to Sarcocystis antigen.

Eighteen male CF-1 mice were used; 10 were infected with  $10^6$  sporocysts of S. muris and 8 served as uninfected controls. Mean IgG levels in infected mice, as determined by radial immunodiffusion, rose in the first 3 weeks of infection, dropped in week 4, then peaked in week 7 and remained high through week 10. A two-tailed t-test showed IgG concentration to be significantly higher in sera of infected mice than in sera of uninfected mice throughout the experiment. DTH as represented by footpad swelling 18 to 24 hours after intradermal injection of S. muris antigen into footpads appeared approximately 2-3 weeks after infection and continued to appear through week 10. Histological studies indicated that these were true DTH reactions. Sera of infected mice were negative for Toxoplasma antibody in IHA and fluorescent antibody tests.

## ABSTRACTS

21. FATAL CEREBROSPINAL NEMATODIASIS AND VISCERAL LARVA MIGRANS IN SQUIRREL MONKEYS INFECTED WITH BAYLISASCARIS PROCYONIS. K.R. KAZACOS\*, W.L. WIRTZ, C.S. CHRISTMAS, DEPT. OF VETERINARY MICROBIOLOGY, PATHOLOGY AND PUBLIC HEALTH, PURDUE UNIVERSITY, W. LAFAYETTE, IN 47907.

To investigate the zoonotic potential and possible public health importance of Baylisascaris procyonis, four adult squirrel monkeys were inoculated intragastrally with 5,000 or 10,500 infective eggs. All monkeys developed dyspnea within 3-5 days post-inoculation (PI) and fulminating central nervous system disease in 12-19 days PI. Clinical signs included severe ataxia, falling, torticollis, an inability to maintain balance or an upright posture, intention tremors of the head and forelimbs, and loss of manual dexterity. All progressed to stupor and recumbency and died or were euthanized. Electroencephalography and cerebrospinal fluid analysis indicated severe, generalized encephalitis. Extensive visceral larva migrans (VLM) was evident grossly and microscopically; larval granulomas were present throughout the body, and especially in the head, neck and thorax. Many hemorrhagic tracks were present in coronal brain slices. Histologically, brains and spinal cords contained numerous malacic-inflammatory track lesions and larvae, along with extensive necrosis, perivascular cuffing and inflammation. Based on these results, B. procyonis should be considered a significant potential zoonosis as a cause of ocular and visceral larva migrans and cerebrospinal nematodiasis, and considered dangerous to man until proven otherwise.

22. CHEMOTAXIS OF MALE NIPPOSTRONGYLUS BRASILIENSIS TO CYCLIC NUCLEOTIDES. RICHARD M. NORDSTROM, JONI B. WARD, AND LEON W. BONE, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILLINOIS 62901.

The response of adult male Nippostrongylus brasiliensis to various dosages of cyclic nucleotides were examined. A linear, dose-dependent response was obtained for c-AMP from 1 mM to 5 mM. Higher dosages were repellent while lower dosages were apparently subthreshold. In contrast, c-GMP was repellent over a 1000-fold dosage range from 0.01 to 10 mM. Additional testing employed c-TMP, c-UMP, c-CMP, and c-IMP.

Female incubate did not contain any identifiable cyclic nucleotides according to ion-exchange chromatography with UV detection at 210 NM. Maceration of females revealed the presence of only c-AMP.



## ABSTRACTS

23. EFFECTS OF JUVENILS ON FECUNDITY AND LARVAL DEVELOPMENT OF *NIPPOSTRONGYLUS BRASILIENSIS*. G.H. GLASSBURG, M. PAPADENETRIOU, AND L.W. BONE, DEPARTMENT OF PHYSIOLOGY, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILLINOIS 62901.

The synthetic juvenile hormones MV-678 (Stauffer Chemical Corp.) and ZR-512 (Zoecon) were tested to determine their effects on egg-hatching and adult fecundity of *Nippostrongylus brasiliensis*. Eggs were treated with various dosages of the juvenoids for four days after which the percentage hatching and subsequent larval development was assessed. No effect on egg hatching was noted, but MV-678 inhibited larval development at  $1.2 \times 10^{-5}$  M.

Treatment of third-stage larvae showed no influence on subsequent adult establishment in the mouse. However, exposure to MV-678 at  $6 \times 10^{-3}$  M and ZR-512 at  $2.8 \times 10^{-4}$  M reduced the fecundity of the adult worms, based on egg recovery from the feces.

24. *IN VITRO* EXCYSTMENT OF THE BLACK SPOT TREMATODE *NEASCUS PYRIFORMIS* CHANDLER, 1851 (TREMATODA: DIPLOSTOMATIDAE). A.D. JOHNSON, B.J. SCHROEDER AND K.H. MOHAMMAD, DEPARTMENT OF BIOLOGY, UNIVERSITY OF SOUTH DAKOTA, VERMILION. 57068

Maximum *in vitro* excystment with *Neascus pyriformis* metacercariae required two treatments; 1) a low pH pretreatment [acidified pepsin or acidified Locke's balanced salt solution (BSS)], and 2) a trypsin-sodium cholate excystment medium at pH 7.4. The excystment rate, however, was higher with acidified Locke's BSS than with acidified pepsin. No enhancement of excystment was observed with a 0.03% sodium dithionite pretreatment between acidified Locke's BSS and the excystment medium. Excystment occurred in trypsin alone and in all trypsin containing media with or without pretreatment, but not in Locke's BSS, bile salts or sodium cholate alone. Excystment of *N. pyriformis* was primarily an active process with the larva breaching the narrow end of the parasite cyst, although digestion of the host cyst and some wrinkling of the parasite cyst occurred in excystment media.

25. ECHINOCOCCOSIS ON ISLE ROYALE. LEWIS PETERS, MARK WOLOWIEC, AND L. DAVID SIBLEY, DEPARTMENT OF BIOLOGY, NORTHERN MICHIGAN UNIVERSITY, MARQUETTE, MICHIGAN 49855.

*Echinococcus granulosus* and *Taenia hydatigena* were identified from a wolf on Isle Royale. Wolf scats were examined and found infected with eggs of *Alaria*, *Toxocara*, *Toxoscaris*, *Capillaria*, and hookworms, as well as taeniids. Taeniid eggs were not found in fox scats, indicating that *E. multilocularis* does not currently occur on Isle Royale.

We recovered one taeniid egg from a water sample and five eggs from soil samples. Some taeniid eggs from wolf scats and *Echinococcus* eggs from adults measured less than 30 micrometers in at least one dimension; water filters with a nominal pore size of 30 micrometers may not remove all *Echinococcus* eggs.

## ABSTRACTS

26. PARASITE FAUNA IN SOME WISCONSIN LAKES. OMAR M. AMIN, SCIENCE DIVISION, UNIVERSITY OF WISCONSIN PARKSIDE, KENOSHA, WI 53141

Thousands of leech and crustacean ectoparasites and endoparasitic helminths, among other disease agents, have been removed from 40 species of fish of 10 families and two species of turtles since 1976 from two eutrophic lakes in southeastern Wisconsin. More than 40 parasite species and one viral agent have been identified so far. Parasitic groups include: lernaeid and argulid crustaceans; digenetic trematodes; caryophyllaeid, cystocephalid, and segmented cestodes; camallanid and other nematodes; echinorhynchid, neoechinorhynchid, fessisentid, and pomphorhynchid acanthocephalans; glossiphoniid piscicolid, erpobdellid, and hirudinid leeches; and viruses, e.g., lymphocystis.

Some of the major findings and recent progress will be reported and relationships to the distinct ecology of both lakes will be highlighted.

27. A COLEOPTERAN ECTOPARASITE (*PLATYPSYLLUS CASTORIS* RITSEMA) OF THE BEAVER; AN EXTENSION OF ITS DISTRIBUTION AND A REVIEW OF ITS LIFE HISTORY. R. D. DAVIS AND M. A. GOODRICH, DEPARTMENT OF ZOOLOGY, EASTERN ILLINOIS UNIVERSITY, CHARLESTON, ILL. 61920

*Platypsyllus castoris* Ritsema is an ectoparasite of the beaver (*Castor canadensis* Kuhl). The published distribution records suggest, but do not document, an overlapping distribution with that of its host; this is the first record of this beetle from Illinois. A brief morphological description and a summary of its life history will be presented.

## Session II

Minutes of the Business Meeting  
of the 32nd  
Annual Midwestern Conference of Parasitologists  
(Prepared by George Garoian, Sec./Treas.)

The 32nd Annual Midwestern Conference of Parasitologists was held on campus of Eastern Michigan University at Ypsilanti, 12-14 June, 1980.

## Business Session I

The meeting was called to order by Presiding Officer, Dr. Allen D. Johnson at 4:05 p.m. June 13, 1980.

Minutes of AMCOP 31 as appearing in The Journal of Parasitology 65(6): December 1979 were approved with correction of typographical errors to the dates were 31 May to 2 June, 1979 and "Awards to graduate students supported by Ann Arbor Biological Center and Eli Lilly Co. (Herrick Award)." ."

Dr. Coil followed by Dr. Garoian presented a Treasurer's report covering period from June 1979-June 1980. It was moved and passed to accept report.

Dr. Johnson read a letter from Dr. Esch of the Southeastern Society of Parasitologists noting their opposition to any change in ASP Bylaws requiring Council approval of Nominating Committee actions. After brief discussion of the motion that we also oppose such a change in ASP Bylaws question was called and the vote was unanimous (44). The secretary instructed to inform Dr. M. Voge, Bylaws Committee Chairperson.

Dr. Johnson reported the results of a recent survey of the interests of members. Results from 88 respondents showed the following interests:

|    |                                |    |                  |
|----|--------------------------------|----|------------------|
| 34 | Protozoans                     | 18 | Acanthocephalans |
| 48 | Flukes                         | 7  | Arthropods       |
| 30 | Tapeworms                      | 28 | Nematodes        |
| 53 | Biology, ecology, life history |    |                  |
| 41 | Disease, pathology, treatment  |    |                  |
| 26 | Physiology, biochemistry       |    |                  |
| 25 | Taxonomy, anatomy              |    |                  |

Other: Mollusks (2), Hirudinea (1), Public Health (1),  
Biol. control (1), Pop. genetics (1), Behavior (1),  
Med. Parasit. (1).

Dr. Coil speaking for the Nominating Committee requested guidance from membership regarding whether or not there should be more than one candidate listed for each position. A motion was made, seconded, and passed for the Nominating Committee to continue as in the past with a single slate with any additional candidates nominated from the floor.

The meeting then recessed until 11 a.m. Saturday, June 13.

Dr. Donal Meyer reported that he had audited the treasurer's records and found all in order. The motion to accept his report was approved.

Dr. Donal Meyer reported for the Meeting Site Committee that they recommended the invitation from Eastern Illinois University, Charleston be accepted for 1981. Motion was made and approved.

Dr. Raymond Dillon reported for the Program Committee recommending these topics for program consideration: a) immunity to protozoan parasites; b) nematode behavior patterns; and c) biological control of parasites. The Committee requested membership assistance in providing names of people appropriate to these topics to the Program Officer. Motion to accept the report was made and passed.

The following Resolutions were reported by Gordon Florin for the Resolutions Committee:

Whereas: Dr. Elizabeth Waffle, Program Chairman, coordinated the many aspects of this meeting at Eastern Michigan University in a commendable manner, and

Whereas: Eastern Michigan University and Wendy Duvall, Director of Hoyt Conference Center, provided needed services, and

Whereas: Eli Lilly & Co. has graciously continued to provide full funding for the Herrick Award, and Ann Arbor Biological has supported the La Rue Award, along with a number of anonymous contributions from AMCOP members, and

Whereas: Dr. George Garoian provided registration and program materials in an efficient and timely manner and also sought out former and prospective members, and

Whereas: Drs. Tom Dunagan, Don Miller, and Jeffrey Williams provided superb presentations, and

Whereas: The papers and demonstrations were of high caliber, and

Whereas: Dr. Allen Johnson, presiding officer, provided a smooth format for the presentations of papers and the business meetings,

Be it hereby resolved,

That the membership of the 32nd AMCOP meeting express their deep gratitude and sincere appreciation to all of the above on this occasion.

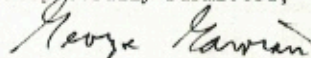
Dr. Waffle presented the G.R. La Rue Award for the outstanding paper presentation by a graduate student. This year there were co-winners and the \$200 prize was equally divided between H. Ray Gamble, Ohio State University and Michael Goldman, Purdue University.

Milo Brandt of the Eli Lilly Co. presented the C.A. Herrick Award \$200 to Carol L. Williams, University of Minnesota for the outstanding contribution by a graduate student.

Dr. William Coil of the Nominating Committee presented the following list of candidates to the membership: Presiding Officer - Dr. Donald Miller of Southern Illinois University and Program Officer - Dr. Bill Ridgeway of Eastern Illinois University. There being no other nomination on the floor a unanimous ballot was cast for their election.

There being no further business placed before this 32nd annual meeting, Dr. Johnson presented the gavel to Dr. Miller who adjourned the meeting at 12 noon, June 14, 1980.

Respectfully submitted,



George Garoian, Secretary/Treasurer  
AMCOP

#### Committees Appointed by Presiding Officer

Judging of Papers (for La Rue Award): William G. Dyer and Leon W. Bone

Judging of Demonstrations (for Herrick Award): George Kelly and Paul M. Nollen

Nominating: William H. Coil and Raymond Cable

Future Meeting Sites: Donal G. Myer and Frederick J. Vande Vusse

Resolutions: Melvin Denner and Gordon G. Florin

Program: John L. Crites and Raymond D. Dillon

#### 1981 AMCOP Members

(S = Student member)

S John H. Adams  
367 B. Veterinary Medicine  
University of Illinois  
Urbana, Illinois 61801

Charles J. Amento  
54 A Bellview Terrace  
Rensselaer, New York 12144  
(518) 463-4524  
(518) 474-3474

Dr. Omar M. Amin  
Science Division  
University of Wisconsin-Parkside  
Kenosha, Wisconsin 53141  
(414) 553-2327

S Kenneth W. Bafundo  
Dept. of Pathology  
College of Veterinary Medicine  
University of Illinois  
Urbana, Illinois 61874

S Verona A. Barr  
1705 Johnson Drive  
Normal, Illinois 61874  
(309) 452-4082

William J. Bemrick  
Dept. of Vet. Pathobiology  
College Veterinary Medicine  
University of Minnesota  
St. Paul, Minnesota 55108  
(612) 373-0793

S Byron L. Blagburn  
156 Paddock Dr. E. Apt. B-4  
Savoy, Illinois 61874

S Edmour F. Blouin  
1105 No. 33rd Street  
Lincoln, Nebraska 68503

Dr. Leon W. Bone  
Dept. of Physiology  
Southern Illinois Univ.  
Carbondale, Illinois Univ. 62901  
(618) 453-2583

Milo C. Brandt  
Dept. of Parasitology Res.  
Eli Lilly and Co., Box 708  
Greenfield, Indiana 46140  
(317) 462-8355

Dr. George D. Cain  
Department of Zoology  
University of Iowa  
Iowa City, Iowa 52242

S Paul A. Catalano  
Dept. of Biological Sciences  
University of Cincinnati  
Cincinnati, Ohio 45221

Dr. James R. Coggins  
Department of Zoology  
University of Wisconsin-Milwaukee  
(414) 963-4373

William H. Coil  
Dept. Systematics & Ecology  
University of Kansas  
Lawrence, Kansas 66045  
(913) 864-4301

S Dr. Bruce Conn  
Dept. of Biological Sciences - 006  
University of Cincinnati  
Cincinnati, Ohio 45221

S R. D. Davis  
116 University Apts.  
Charleston, IL 61920

David L. Daniell  
Department of Zoology  
Butler University  
Indianapolis, IN 46208

S Mohamed S. Dehlawi  
Department of Zoology  
Butler University  
Indianapolis, IN 46208

Melvin Denner, Chairman  
Div. of Science & Math  
Indiana State Univ. at Evansville  
8600 University Blvd.  
Evansville, Indiana 47712  
(812) 464-1701

Charles W. Dickerson  
Ralston Purina Company  
835 South 8th Street  
St. Louis, Missouri 63188  
(314) 982-3161

## 1981 AMCOP Members

## 1981 AMCOP Members

mond D. Dillion, Ph. D.  
t. of Biology  
versity of South Dakota  
million, South Dakota 57069  
5) 677-5212

my T. Dunagan  
t. of Physiology  
thern Illinois University-Carbondale  
bondale, Illinois 62901

ald G. Dusanic  
t. of Life Sciences  
iana State University  
re Haute, Indiana 47809  
2) 232-6311, Ext. 2510

hur E. Duwe  
e Superior State College  
S. Marie, Michigan 49783  
6) 635-2438

William G. Dyer  
artment of Zoology  
thern Illinois University-Carbondale  
bondale, Illinois 62901  
8) 536-6666

nk Etges  
t. of Biol. Sciences - 006  
versity of Cincinnati  
cincinnati, Ohio 45221  
3) 475-4209

l R. Fitzgerald  
lege of Veterinary Medicine  
versity of Illinois  
ana, Illinois 61801

liam F. Font  
t. of Biology  
versity of Wisconsin-E. C.  
Claire, Wisconsin 54701  
5) 836-4166

mas R. Fritsche *3510 W. Elmore  
t. Ecol. & Behav. Biol. Apt. #102  
versity of Minnesota  
Church Street, S.E. Seattle, WA  
neapolis, Minnesota 55455  
98199*

Richard C. Funk  
t. of Zoology  
thern Illinois University  
rleston, Illinois 61920

S. M. Gaafar  
Dept. of Veterinary Microbiology  
Purdue University  
W. Lafayette, Indiana 47906

H. Ray Gamble  
Dept. of Zoology  
Morrill Science Center  
University of Massachusetts 01003  
(413) 545-0490

Dr. George Garoian  
Dept. of Zoology  
Southern Illinois University  
Carbondale, Illinois 62901  
(618) 536-2314

S Jacqueline Gillis  
312 Vet. Med. Annex  
College of Veterinary Medicine  
University of Illinois  
Urbana, Illinois 61801

S Garth Glassburg  
708 W. Freeman Apt. 9  
Carbondale, Illinois 62901

S Michael A. Goldman  
Dept. of Biological Sciences  
Purdue University  
W. Lafayette, Indiana 47907

S Carolyn F. Guptill-Yoran  
1519 Hawthorn Ct.  
Ames, Iowa 50011

John H. Greve  
Dept. of Veterinary Pathology  
Iowa State University  
Ames, Iowa 50011  
(515) 294-3282

Dr. M. F. Hansen  
Division of Biology  
Kansas State University  
Manhattan, Kansas 66506

Dr. W. Hugh Headlee  
762 North Riley Avenue  
Indianapolis, Indiana 46201  
(317) 357-9416

Verna L. Holoman  
P.O. Box 3196  
University Station  
Columbus, Ohio 43210

S Jon M. Holy  
6140 32nd St. So.  
Wisconsin Rapids, Wisconsin 54494

Ernest J. Hughins  
Biology Department  
South Dakota State University  
Brookings, South Dakota 57007  
(605) 688-6141

S Karla M. Ingram  
Department of Zoology  
Science II Building  
Iowa State University  
Ames, Iowa 50011  
(515) 294-2759

Virginia R. Ivens  
College of Veterinary Medicine  
University of Illinois  
Urbana, Illinois 61801

S John E. Jacobson  
Apt. 114-16 Nititz Dr.  
W. Lafayette, Indiana 47906

B. J. Jaskoski  
Loyola University  
6525 Sheridan  
Chicago, Illinois 60626

Edward L. Jeska, Ph.D.  
Vet. Med. Res. Inst.  
Iowa State University  
Ames, Iowa 50011  
(515) 294-7644

S Reid Jilek  
Box 377 Medical Center  
University of Virginia  
Charlottesville, Virginia 22908  
(804) 924-5101

Allen D. Johnson  
Department of Biology  
Univ. of South Dakota  
Vermillion, South Dakota 57069  
(605) 677-5211

S William Johnson  
Dept. of Zoology  
Univ. of Iowa  
Iowa City, Iowa 52242

Dr. Kevin R. Kazacos  
Dept. Vet. Microbiol., Path. & Pub. Health  
Purdue University  
West Lafayette Indiana 47907  
(317) 494-5022

George W. Kelley  
Department of Biology  
Youngstown State University  
Youngstown, Ohio 44555

Dr. Amy Doran Keppel  
636 Erie St. SE #1  
Minneapolis, MN 55414  
(612) 379-7682

S Michael H. Kogut  
Dept. of Poultry Science  
University of Georgia  
Athens, Georgia 30602  
(414) 542-1352

Francis J. Kruidenier  
Dept. of Gen. & Dev.  
515 Morrill Hall  
University of Illinois  
Urbana, Illinois 61801  
(217) 333-1405

S Gunther O. W. Kruse  
Harold W. Manter Laboratory  
University of Nebraska State Museum  
Lincoln, Nebraska 68588

S Rex A. Kuye  
1107 3rd Street  
Charleston, Illinois 61920  
(217) 345-6934

Dr. Kook J. Lee  
Biological Sciences  
University of Kentucky  
Lexington, Kentucky 40506

Dr. Norman D. Levine  
College of Veterinary Medicine  
University of Illinois  
Urbana, Illinois 61801  
(217) 333-2766

## 1981 AMCOP Members

## 1981 AMCOP Members

Vincent Lopez  
 Dept. Vet. Microbiol., Path. & Pub. Health  
 Purdue University  
 at Lafayette Indiana 47907  
 (7) 494-5046

Stephen R. Mack  
 31 Madison Avenue  
 Rockfield, Illinois 60513  
 (2) 485-8733

Richard O. McCracken  
 Department of Biology  
 Indiana University - Purdue University  
 31 East 38th Street  
 Indianapolis, Indiana 46205  
 (7) 923-1321 ext. 444

William T. McGeachin  
 16 Rutherford Wynd  
 Louisville, Kentucky 40205  
 (2) 459-2749

Jart M. McIlraith, Ph.D.  
 Department of Biology  
 University of Wisconsin-La Crosse  
 La Crosse, Wisconsin 54601  
 (8) 785-8238

Janis M. McNair  
 Dept. of Biology  
 University of Pittsburgh-Johnstown  
 Johnstown, Pennsylvania 15904  
 (4) 266-9661

Carla R. Mendonca  
 College of Veterinary Medicine  
 University of Illinois  
 Urbana, Illinois 61801

Edward P. Meyer  
 National Fishery Research Lab.  
 P. O. Box 818  
 Crosse, Wisconsin 54601  
 (8) 783-6451

Donald M. Miller  
 Dept. of Physiology  
 Southern Illinois University  
 Carbondale, Illinois 62901

Janis J. Minchella  
 Dept. of Biological Sciences  
 Purdue University  
 at Lafayette, Indiana 47907

Lawrence G. Mitchell  
 Dept. of Zoology  
 Iowa State University  
 Ames, Iowa 50011  
 (515) 294-4680

Donal G. Myer *Box 65*  
 Dept. of Biological Sciences  
 Southern Illinois University  
 Edwardsville, Illinois 62025  
 (618) 692-2377  
 (618) 692-3927

Elizabeth Narcisi  
 1469 Neil Ave., Apt. A  
 Columbus, Ohio 48201

Paul Nollen  
 Dept. Biological Sciences  
 Western Illinois University  
 Macomb, Illinois 61455  
 (309) 298-1359

Richard M. Norstrom  
 Rt. 1 Box 183  
 Makanda, Illinois 62958

Barat Panahi  
 Zoology Department ISU  
 Ames, Iowa 50011  
 (515) 294-4516

Dr. Peter W. Pappas  
 Department of Zoology  
 The Ohio State University  
 Columbus, Ohio 43210  
 (614) 422-2746

Low Peters  
 Department of Biology  
 Northern Michigan University  
 Marquette, Michigan 49855  
 (906) 227-2215

Dr. Priscilla M. Peterson  
 Box 1364  
 Janesville, Wisconsin 53547

Gordon Florin  
 375 Marion St., Apt. 1  
 St. Paul, Minnesota 55103  
 (612) 293-0574

Edwin C. Powell  
 Department of Zoology  
 Iowa State University  
 Ames, Iowa 50011  
 (515) 294-4956

Robert Price  
 Dept. of Zoology  
 Southern Illinois University  
 Carbondale Illinois 62901  
 (618) 536-2314

Mary Hanson Pritchard  
 W-529 Nebraska Hall  
 University of Nebraska  
 Lincoln, Nebraska 68588  
 (402) 472-3334

Vicki Reisner  
 703 E. Colorado St.  
 Urbana, Illinois 61801

Bill T. Ridgeway  
 Dept. of Zoology  
 Eastern Illinois University  
 Charleston, Illinois 61920  
 (217) 581-2911

*Home (217) 345-7418*

Bruce Setlock  
 Dept. of Zoology; 333 Science II  
 Iowa State University  
 Ames, Iowa 50011  
 (515) 294-7402

Iraj Sharifi  
 1826-D Orchard Place  
 Urbana, Illinois 61801

L. David Sibley  
 Department of Biology  
 Northern Michigan University  
 Marquette, Michigan 49855  
 (906) 227-2215

Richard A. Sidner  
 Dept. of Biological Sciences - 006  
 University of Cincinnati  
 Cincinnati, Ohio 45221  
 (513) 475-4209

Charles K. Smith II  
 Lilly Research Laboratories  
 Eli Lilly and Co.  
 Greenfield, Indiana 46140

Daniel E. Snyder  
 312 Veterinary Medicine Bldg.  
 University of Illinois  
 Urbana, Illinois 61801

Jerry Stumpf  
 Department of Life Sciences  
 Indiana State University  
 Terre Haute, IN 47809  
 (809) 232-6311 ext. 2510

Daniel R. Sutherland  
 Department of Zoology  
 Iowa State University  
 Ames, Iowa 50011

Kenneth S. Todd, Jr.  
 College of Veterinary Medicine  
 University of Illinois  
 Urbana, Illinois 61801

Carl Train  
 Department of Biology  
 Southeast Missouri State University  
 Cape Girardeau, Missouri 63701  
 (314) 651-2171

Benjamin N. Tuggle  
 National Wildlife Health Lab  
 1655 Linden Dr.  
 Madison, Wisconsin 53706  
 (608) 264-5419

Mary Ufford *Zoology*  
 Dept. of ~~Microbiology & Public Health~~  
 Michigan State University  
 E. Lansing, Michigan 48824  
 (517) 355-7520

Gary L. Uglem  
 Biological Sciences  
 University of Kentucky  
 Lexington, Kentucky 40506  
 (606) 258-8995

Dr. Charles M. Vaughn  
 Dept. of Zoology, Upham Hall  
 Miami University  
 Oxford, Ohio 45056  
 (513) 529-4918

Fred Vande Vusse (Address until  
 Silliman University, May '83)  
 Dumaguete City 6501, Philippines

*add this*

## 1981 AMCOP Members

William Wade, D.V.M., M.S.  
 Department of Biology, Pathology Building  
 Northern Michigan University,  
 Marquette, Michigan 49707

Elizabeth L. Waffle  
 Department of Biology  
 Northern Michigan University  
 Marquette, MI 49707

Jean Watertor  
 Department of Biological Sciences  
 Wichita State University  
 Wichita, Kansas 67208

Lucille Williams  
 Department of Ecology and Behavioral Biology  
 University of Minnesota  
 St. Paul, MN 55455  
 (612) 373-7987

Wendy Wirtz  
 183 Woodland Terr.  
 W. Lafayette, Indiana 47906  
 (317) 463-7988

Dr. Darwin Wittrock  
 Dept. of Biology  
 Univ. Wisconsin - Eau Claire  
 Eau Claire, Wisconsin 54701  
 (715) 836-3506

Mark E. Wolowiec  
 Department of Biology  
 Northern Michigan University  
 Marquette, Michigan 49855  
 (906) 227-2215

Douglas B. Woodmansee  
 Dept. of Zoology  
 Iowa State University  
 Ames, Iowa 50011

110 members - As of May 15, 1981  
 (67 regular, 43 student)

Total = 134 (86 regular, 48 student)

## THE ONCHOSPHERE

by Walter Garstang

The Onchosphere or Hexacanth was not designed for  
 frolic,  
 His part may be described perhaps as coldly diabolic:  
 He's born amid some gruesome things, but this should  
 count for virtue,  
 That steadily, 'gainst fearful odds, he plies his task--to  
 hurt you!

He's very small, a mere pin's head, beset with six small  
 hooklets,  
 Is whirled about by wind and rain through puddles, fields  
 and brooklets;  
 But if a pig should swallow him, as many porkers do,  
 He's made a start with no mistake: he's on the road to you!

Again I say, don't blame the brat--he hasn't any head!  
 It isn't any fault of his--he wasn't painted red!  
 But once inside, he burrows through, and gropes his way  
 about,  
 Then swells and sprouts a head at last, though this is inside  
 out!

He's now a Cysticercus in the muscles of a pig,  
 With just a sporting chance of getting out to grow up big.  
 If you'll consent to eat your pork half-raw or underdone,  
 His troubles will be over, and a Tapeworm will have won:  
 He'll cast his anchors out, and on your best digested food  
 Will thrive, and bud an endless chain to raise a countless  
 brood.

REGISTRATION AND ROOM REQUEST

XXXIII  
Annual Midwestern Conference of Parasitologists

Eastern Illinois University  
Charleston, Illinois  
June 4, 5, 6, 1981

NOTES

NAME \_\_\_\_\_

Institution \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Zip \_\_\_\_\_

Guest Rooms, Stevenson Tower, EIU

Rooms available as of afternoon - June 4th      June 4th      June 5th      Amount

Double      7.50 ( )      ( )      \_\_\_\_\_

Single      10.50 ( )      ( )      \_\_\_\_\_

Banquet Buffet, 7:00 p.m., June 5th, \$7.50 each. No. \_\_\_\_\_

Registration Fee (Members \$4.00; Non-members \$7.00) \_\_\_\_\_

TOTAL AMOUNT ENCLOSED \_\_\_\_\_

Make Check or M.O. Payable to "A.M.C.O.P. - 33"

and

Return Completed Form with Check or M.O. to:

Bill T. Ridgeway, Program Officer  
A.M.C.O.P. - 33  
P.O. Box 702  
Charleston, Illinois  
62901

## OFFICE USE ONLY

Date Recvd. \_\_\_\_\_

Deposited \_\_\_\_\_

Amount \_\_\_\_\_

Chk-M.O. # \_\_\_\_\_

Rctp. Mtd. \_\_\_\_\_

Regst. Pk. \_\_\_\_\_

Room \_\_\_\_\_

Bang. \_\_\_\_\_

Conf. fee \_\_\_\_\_

AMCOP-33 Eastern Illinois University  
Charleston, IL June 4-6, 1981

Charleston is located in east-central Illinois, 175 miles south of Chicago (I-57) 53 miles west of Terre Haute (Ill. 16) and 138 miles east of St. Louis (I-70). It is 7 miles east of the Charleston-Mattoon exit of I-57. This exit is Illinois 16. Continue east into Charleston on Lincoln Street; turn right on Fourth; Stevenson Tower is the tall dormitory at Fourth and Grant. Park in front of or behind the dormitory.

Mattoon-Charleston is served by Britt Airline from Chicago.  
Mattoon is served by Amtrack from Chicago-New Orleans.

## Eastern Illinois University



NOTES