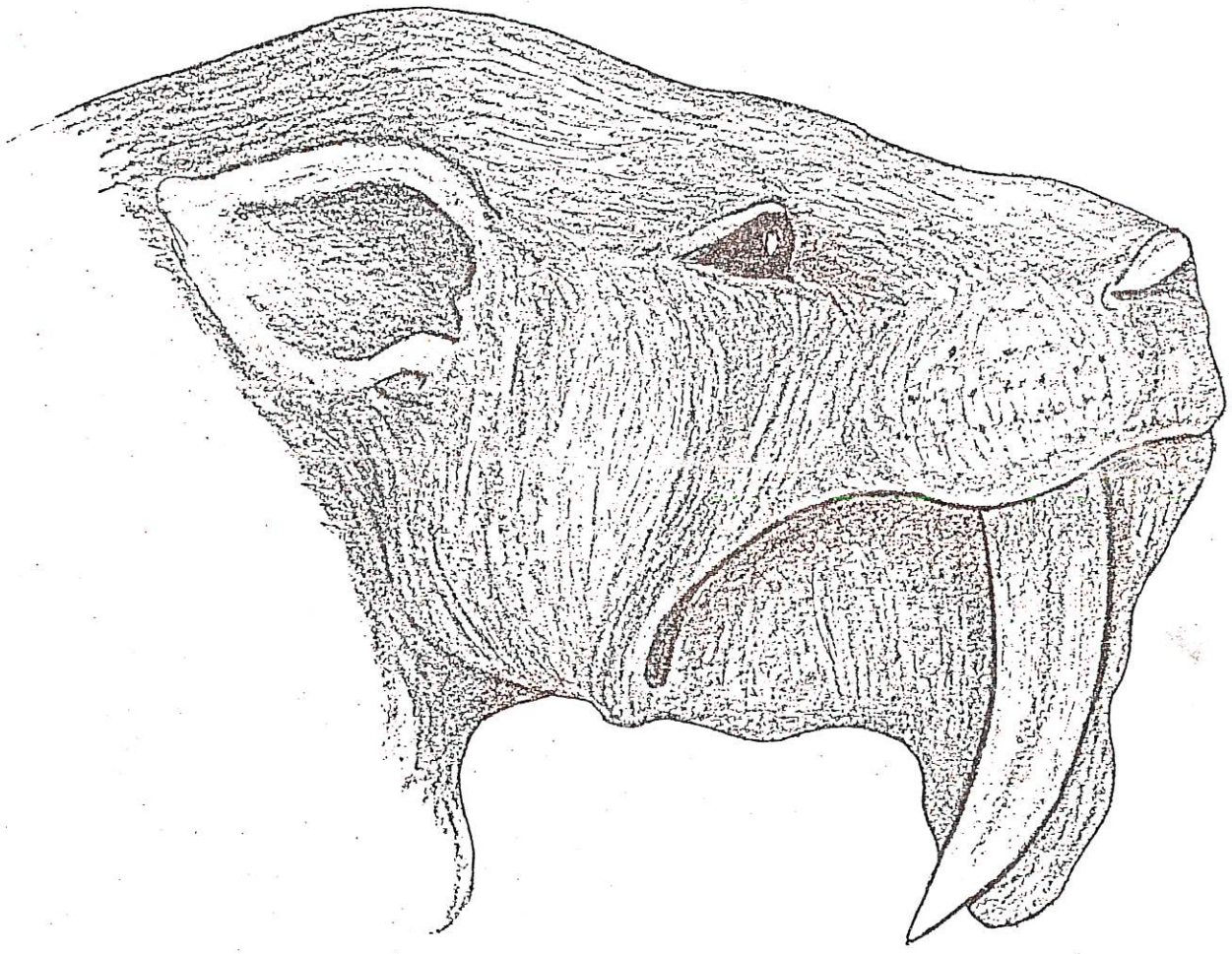
D. Kelley

Coil copy

ANNUAL MIDWEST CONFERENCE

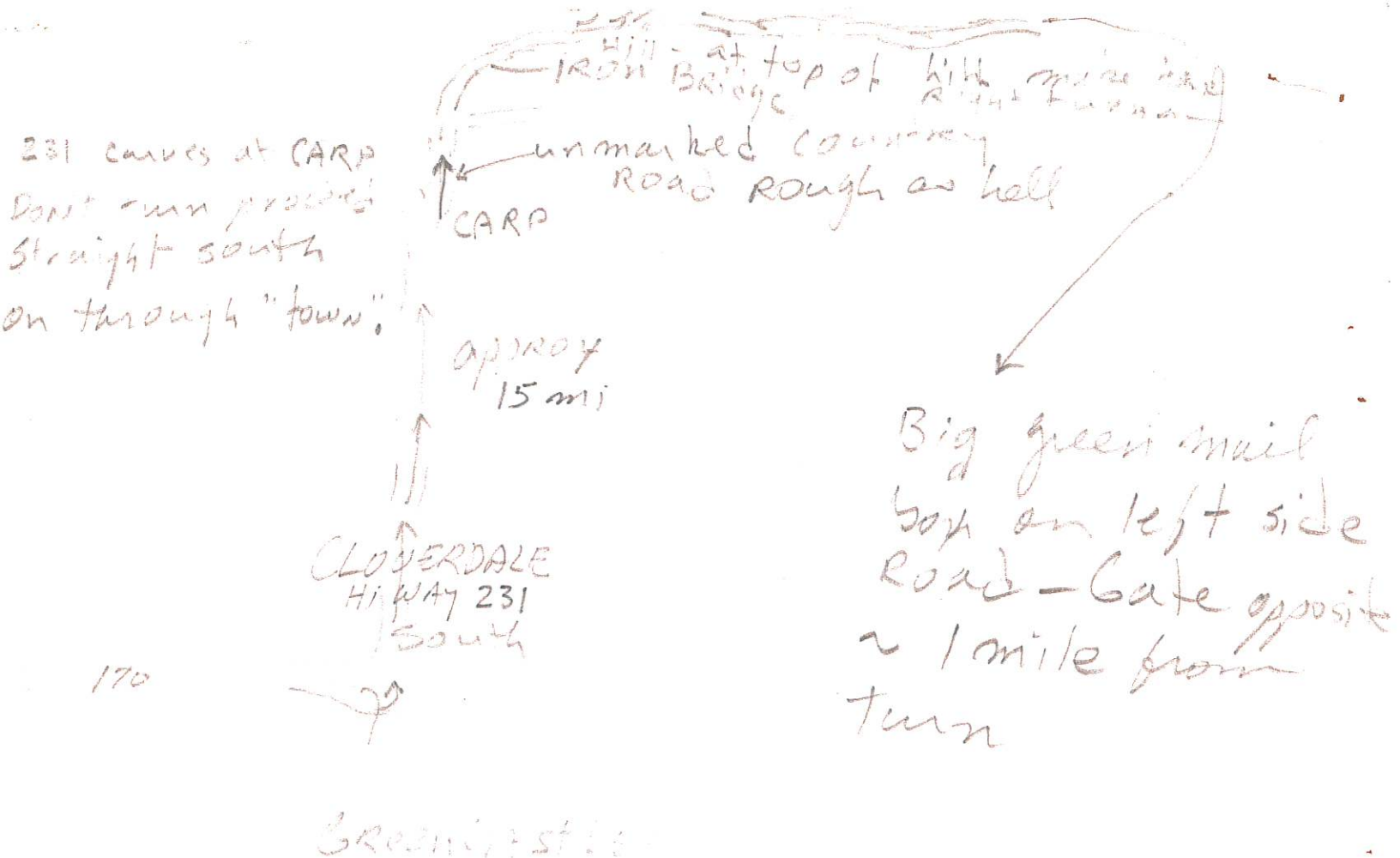
OF PARASITOLOGISTS



INDIANAPOLIS

JUNE 15-17, 1978

A



George Keller
Box 329B RR2
Spencer, IN
47460
Conrad Stead

La Verde. Reprint
McNair - GM paper
Cholinesterase

Contents

May 31 June 2
Loyola

Officers AMCOP XXX 1978

Delfin #3

Presiding Officer	Ernest J. Hugghins
Program Officer	Milo Brandt
Secretary Treasurer	William H. Coil

Etges #3
Kelley #3

Acknowledgements

AMCOP expresses its gratitude to the following organizations and persons whose contributions have made the 30th AMCOP both enjoyable and meaningful.

Eli Lilly Company

Ann Arbor Biological Center

Anonymous donor to the LaRue Fund

Indiana Central University

Fluento #2
LaVerde #3
Fletcher #2
Weeks #2

Cover: Barbourofelis fricki, Saber-toothed Cat. This cat roamed the midlands about 7,000,000 years ago and doubtlessly carried the progenitors of present day Coccidia of felids. Restoration by Jean Bright Martin.

Goldman #2
Callender #3

AMCOP PROGRAM

June 15	3:30 - 8:00 p.m.	Registration: lobby of "NEW DORM," Indiana Central University Campus
	8:00 - 11:00 p.m.	Hospitality at Holiday Inn, I-465 at Emerson Ave. exit (cash bar)
June 16	7:30 - 8:30 a.m.	Breakfast, Schwitzer Center (if checked on registration form)
	8:00 - 10:00 a.m.	Registration: lobby of "NEW DORM"
	8:30 a.m.	Board buses for Lilly tour (no children)
	12:00 noon	Lunch courtesy Eli Lilly and Company at Greenfield
	1:00 p.m.	Board buses for return to Indiana Central campus
	2:00 - 5:00 p.m.	Demonstration set-up and demonstration and poster session, Biology labs, 1st floor Lilly Hall

DEMONSTRATIONS

1. Parasite-parasite interaction involving Schistosoma and Salmonella CHARLES J. AMENTO, Purdue University, West Lafayette, Indiana.

2. Techniques for nerve cell mapping in small nematodes. DENNIS M. McNAIR, Southern Illinois University, Carbondale, Illinois.

3. In Vitro Compatability Assay. DENNIS J. MINCHELLA, Purdue University, West Lafayette, Indiana.

4. Pharmacology of the Acanthocephalan Rete System. ROBERT A. YOUNG, Southern Illinois University, Carbondale, Illinois.

5. Climbing behavior in the rabbit tick, Haemaphysalis leporispalustris (Acari: Ixodes: Ixodidae). Vegetation height and diameter selection. G. N. VOGEL, University of Kansas, Lawrence, Kansas.

6. Schistosome-snail strain specificity: a case study. MADELEINE FLETCHER, Purdue University, Lafayette, Indiana.

7. The Acanthocephalan Rete System: An Analog of Smooth Muscle. DONALD M. MILLER, BRENDAN S. WONG, and T. T. DUNAGAN. Southern Illinois University, Carbondale, Illinois, 62901.

8. Fatty acids in female Macracanthorhynchus hirudinaceus (Acanthocephala). WAYNE SMITH, T. T. DUNAGAN and DONALD M. MILLER, Southern Illinois University, Carbondale, Illinois.

9. Studies on the proboscis of Gracilisentis gracilisentis (Acanthocephala: Neoechinorhynchidae). REID JILEK and JOHN L. CRITES, The Ohio State University, Columbus, Ohio.

	5:00 - 5:30 p.m.	Business meeting, lecture room, 2nd floor Lilly Hall
	6:30 p.m.	Banquet buffet, Schwitzer Center Speaker: Dr. J. P. Dubey, The Ohio State University Title: Recent Advances in Feline and Canine Coccidia and Related Organisms
June 17	7:30 a.m.	Breakfast, Schwitzer Center (if checked on registration form)
	8:00 a.m.	Coffee and donuts, Lilly Hall
	8:30 a.m.	Papers, 2nd floor Lilly Hall

PAPERS

10. Humoral Immunosuppressive Substances from Trypanosoma musculi JULIA W. ALBRIGHT, Indiana State University, Terre Haute, Indiana.

11. Development of Cotylusur Flabelliformis Metacercariae in Uninfected and Schistosoma Mansoni-Infected Biophalaria Glabrata. T. R. FRITSCHE, Department of Ecology and Behavioral Biology, and School of Medicine, University of Minnesota, Minneapolis, Minnesota.

12. Migration of Ornithodiplostomum ptychocheilus (Trematoda: Diplostomatidae) in the fish intermediate host. GARY L. HENDRICKSON, Iowa State University, Ames, Iowa.

13. Scanning and Transmission Electron Microscopy of the Human Pubic Louse, Phthirus pubis (L.)1758. CARY K. KUENN, Zoology Department, University of Wisconsin, Milwaukee, Wisconsin.

14. Inhibition of Snail Host Fecundity by Schistosoma mansoni. DOUGLAS L. LOOKER, University of Cincinnati, Cincinnati, Ohio.

15. Penetration stimuli for a swimmer's itch cercaria. WILLIAM T. McGEACHIN, Iowa State University, Ames, Iowa.

16. Karyotypes of Schistosoma mansoni and S. japonicum. RICHARD W. McKENZIE, University of Iowa, Iowa City, Iowa.

17. Estimation of Growth Equation Parameters for Biomphalaria glabrata. GORDON G. PLORIN, Department of Ecology and Behavioral Biology, University of Minnesota, Minneapolis, Minnesota.

18. Radiation sterilization of the lone star tick. M. A. STANLEY, University of Kansas, Lawrence, Kansas.

19. A parasitologic survey for Mansonella ozzardi in the Comisaria del Vaupes, Colombia. L. K. LIGHTNER, A. EWERT, Tulane University International Center for Medical Research, Cali, Colombia and A. CORREDOR, E. SABOGAL, Instituto Nacional de Salud de Colombia, Bogota, Colombia.

20. The Phylogeny of Alloglossidium (Trematoda:Macroderoididae). WILLIAM F. FONT, University of Wisconsin-Eau Claire.

21. Incidence and distribution of Echinococcus multilocularis in fox of southern Minnesota and northern Iowa. DANIEL E. LITTLE and FREDERICK J. VANDE VUSSE, Gustavus Adolphus College, St. Peter, Minnesota.

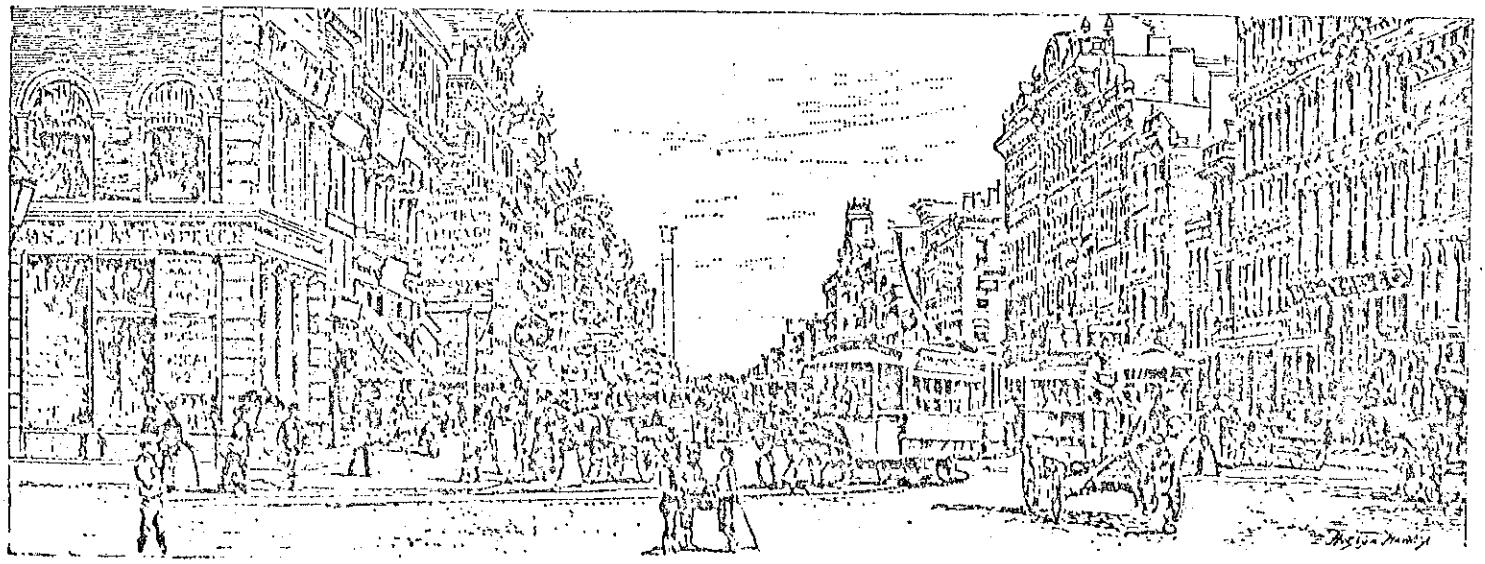
22. Pairing behavior of Nematospiroides dubius under various in vitro conditions. JOHN M. ACKERMANN, University of Notre Dame, Notre Dame, Indiana.

23. The Distribution of Postharmostomum Helicis in Anguispira Kochi Strontiana. BENJAMIN N. TUGGLE and JOHN L. CRITES, Department of Zoology, The Ohio State University, 1735 Neil Avenue, Columbus, Ohio.

24. Trypanosoma lewisi: analyses of antigens provoking precipitin responses during infection in the rat. GARY W. LONG and DONALD G. DUSANIC, Idniana State University, Terre Haute, Indiana.

25. Motility of the ameboid spermatozoa of Ascaris suum: a cinematographic study. M. K. ABBAS and G. D. CAIN, University of Iowa, Iowa City, Iowa.

11:00 a.m. Business meeting and award presentations



1. Parasite-parasite interaction involving Schistosoma and Salmonella
CHARLES J. AMENTO, Purdue University, West Lafayette, Indiana.

It has been known for some time that in cases where both Salmonella and Schistosoma were present, successful treatment of Salmonella first required treatment of Schistosoma.

The present study was initiated to develop an in vivo model to investigate the interactions of various schistosome species with Salmonella typhimurium.

Hamsters patent with Schistosoma mansoni were challenged with an intraperitoneal infection of 10^3-10^7 Salmonella per ml. After various intervals, worm pairs were recovered aseptically from the hamsters, washed 20 times in .2M Sorenson's phosphate buffer. The adult worms were then plated on differential media (brilliant green and/or hektoen enteric agar). As a control the 5th, 10th, 15th, and 20th washes were also plated on the same differential media.

Results to date indicate that Schistosoma mansoni Egypt has interacted with S. typhimurium in 4 of 14 cases, while S. mansoni Puerto Rico has interacted with S. typhimurium in 3 of 5 cases. Salmonella was shown to be present in the liver and intestine of the hamster in the other two cases, but no interaction with the schistosome worm had taken place. No Salmonella has been isolated from control animals challenged with various doses of S. typhimurium intraperotineally. Salmonella has been isolated from one out of 109 control worms removed aseptically from hamsters patent with schistosomiasis that had not been challenged with Salmonella. These studies are continuing and will include S. haematobium and S. japonicum.

2. Techniques for nerve cell mapping in small nematodes.
DENNIS M. MCNAIR, Southern Illinois University, Carbondale, Illinois.

In attempting to study the nervous system of Syphacia obvelata, a small pinworm of mice, a number of obstacles were encountered when conventional fixation and embedding techniques were used. They included shrinkage of tissue, possible dislocation of cellular components, distortion during sectioning and a minimum thickness for sections of about 7µm. By freeze-drying the worms, fixing in formaldehyde vapor, embedding in epoxy resin in vacuo, and sectioning on a hand operated ultramicrotome, uniform undistorted serial sections ranging from 1 to 4 µm are consistently obtained. These sections can be stained with toluidine blue O or the periodic acid-Schiff reaction or both to give good microanatomical detail. Nerve cell processes cannot be followed but cell bodies can be easily distinguished. By projection and drawing from 2 x 2 slides of serial sections the relative positions of cell bodies can be established. The technique is also amenable to examination for catecholamines and indolealkylamines using the formaldehyde induced fluorescence method.

3. In Vitro Compatibility Assay. DENNIS J. MINCHELLA Purdue University, West Lafayette, Indiana.

This report describes the progress being made in the development of a host response assay to determine levels of compatibility of uninfected host snails to the parasite Schistosoma mansoni. The assay will be used to distinquish between compatible and incompatible snail progeny in intraspecific competition experiments without infecting the snails. The procedure uses S. mansoni miracidia which have been transformed in vitro into sporocysts. These sporocysts are labelled using Chromium-51. The labelled sporocysts are then incubated with snail hemolymph which is obtained by aseptically bleeding the snail without killing it. The amount of Chromium-51 in the supernatant is an indication of sporocyst tegumental damage and thus a test of compatibility. The results thus far have been equivocal, but work continues on the development of this novel assay.

4. Pharmacology of the Acanthocephalan Rete System. ROBERT A. YOUNG, Southern Illinois University, Carbondale, Illinois, 62901.

Body wall preparations of Macracanthorhynchus hirudinaceus, were placed in physiological saline (PSS), and spontaneous contractions and potentials recorded. Lyophilized venom from a diversified group of snakes, extracted toxin and drugs dissolved in PSS were applied to the worm preparation. Acetylcholine increased the frequency of spontaneous potentials and contractions and would initiate activity in quiescent preparations. Venom (100 ppm) of the elapid, Naja naja naja, caused an immediate reduction in the action potentials amplitude. The effect was reversible with acetylcholine. Venom (100ppm) of the viper, Bitis arietans, had little effect on the potentials as would be expected of a venom of limited neurotixic capabilities. Similarly, venom of Crotalus adamanteus, (a pit-viper with a venom exhibiting considerable necrotic activity), showed little effect on the body wall potentials. Results for venoms from other species, genera, and families presented varied considerably. Ciguatera toxin (less than 10 ppm) had essentially the same effects as Naja venom but in a longer period of time. Oubain (10^{-5}M) was found to lengthen the depolarization phase but not affect the repolarization phase of the potentials. The resting potential at the same time drifted towards zero. Significance of this study lies in the fact that venoms and toxins provide a varied and natural source for biologically active compounds that are useful in studying and understanding membrane phenomena and that the parasite involved may be a model system for studying effects on parasites in general.

5. Climbing behavior in the rabbit tick, Haemaphysalis leporispalustris (Acari: Ixodes: Ixodidae). Vegetation height and diameter selection. G. N. VOGEL, University of Kansas, Lawrence, Kansas

Larvae were presented with different heights and diameters of vegetation substitutes. There was a marked preference for vegetation that was from 12-15 cm high and had a tip diameter less than 2mm.

6. Schistosome-snail strain specificity: a case study. Madeleine Fletcher, Purdue University, Lafayette, Indiana. The question of why strain specificity occurs in schistosome-snail interactions is complex, involving different factors. Biomphalaria alexandrina is resistant to Puerto Rican Schistosoma mansoni, as evidenced by destruction of all sporocysts within 48 hours. A specific strain of B. glabrata is resistant to Egyptian S. mansoni, but in this case sporocyst development proceeds normally for three weeks, after which the daughter sporocysts degenerate without producing cercariae. The present study is concerned with the elucidation of factors which may determine specificity in these two cases. Infectivity to the two snail species of the schistosome strains and of their hybrid progeny is being monitored, through the determination of snail infection rates, time-sequence histological studies, and in vivo observations of sporocyst development. A series of experiments on intramolluscan interactions between the two schistosome strains may provide information on how larval schistosomes interfere with snail defence reactions. Finally, electrophoretic profiles of the schistosome and snail strains involved, and a comparison of in vitro fertility of the schistosome strains, of crosses between them and of their hybrid progeny, will supplement the genetic information. Preliminary results will be presented at this meeting.

7. The Acanthocephalan Rete System: An Analog of Smooth Muscle
DONALD M. MILLER, BRENDAN S. WONG, AND T. T. DUNAGAN. Southern Illinois University, Carbondale, Illinois. 62901.

Spontaneous action potentials as large as 65 mV with a resting potential of -35±5.0mV have been recorded from the nonstriated bodywall muscles of the acanthocephalan worm Macracanthorhynchus hirudinaceus, obtained from swine small intestines. The effect of external solutions of different ionic composition upon the electrical properties of the membranes have been studied. The recording sites were localized in the rete system. Lanthanum (10^{-3}M) was found to abolish the spontaneous action potentials with a corresponding decrease in the resting membrane potential. In varying the ionic composition of the external solution the amplitude of the spontaneous potential was found to decrease and eventually be abolished by increasing external calcium. Analysis of the data indicates that membrane potential may be potassium dependent but the inward current of the potentials is calcium dependent. Therefore the membrane properties of the acanthocephalan rete system is very similar to that of smooth muscle.

8. Fatty acids in female Macracanthorhynchus hirudinaceus (Acanthocephala). WAYNE SMITH, T. T. DUNAGAN and DONALD M. MILLER, Southern Illinois University, Carbondale, Illinois 62901.

Neutral lipids and phospholipids in the body wall, lemnisci and pseudocoel were determined by the technique of thin layer chromatography and gas chromatography. Fifteen different neutral fatty acids were identified as follows: 10:0, 11:0, 12:0, 14:0, 14:1, 16:0, 18:0, 18:1, 18:2 and/or 20:0, 18:3 and/or 21:1, 20:3, 22:1, 24:1 and 22:6. In addition there were three unidentified GC peaks.

Sixteen different phospholipids were identified in each of the three fractions analyzed. They were as follows: 10:0 11:0, 12:0, 13:0, 14:0, 14:1, 16:0, 18:0, 18:1, 18:2 and/or 20/0, 18:3 and/or 20:1, 20:3, 22:1, 24:1, and 22:6. Four unidentified peaks were also observed.

There was no significant difference in the concentration of total fatty acids in each fraction examined but there were significant differences in the concentration of particular fatty acids when each fraction was compared. There was also an abundant supply of sterols and glycerides in each fraction.

9. Studies on the proboscis of Gracilisentis gracilisentis (Acanthocephala: Neoechinorhynchidae). REID JILEK AND JOHN L. CRITES, The Ohio State University, Columbus, Ohio.

The morphology of the proboscis of Gracilisentis gracilisentis was examined by both light microscopy and scanning electron microscopy. The proboscis of G. gracilisentis possesses 36 hooks arranged in three transverse rows of twelve hooks each. Each hook is fitted with its own individual hook sheath, which attaches to the medial lateral portion of the hook. The terminal and middle rows of hooks are capable of retraction into the proboscis, while the basal row is permanently extended. Examination of serial sections through the proboscis showed only the terminal and middle rows of hooks to possess hook retractor muscles, while the basal row is devoid of muscular attachments. These hook retractor muscles are single longitudinal muscle fibers, which have a distinct attachment to individual hooks. These muscles function in a coordinated manner, in that all hooks in a given transverse row will retract simultaneously. Indications are that the middle row of hooks will retract first followed by the terminal row. The apical end of the proboscis appears as a highly convoluted area. No apical sense organ was observed. The body wall surrounding the proboscis receptacle appears to be reinforced in a manner which allows it to maintain its circular integrity. This would provide an ease in proboscis movement in and out of the proboscis receptacle.

PAPERS

10. Humoral Immunosuppressive Substances from Trypanosoma musculi JULIA W. ALBRIGHT, Indiana State Univ., Terre Haute, IN

The normal immunological competence of mice is severely impaired as a result of infection with T. musculi. The ability of normal spleen cells to respond in vitro to sheep erythrocyte antigens (Srbc) is profoundly suppressed by co-cultivation with spleen cells from infected donor mice. This suppression is attributable to soluble substances from the parasites as shown by the following results: (a) suppression is exerted on normal spleen cells separated from the T. musculi by a cell-impermeable membrane, (b) extracts of T. musculi when incubated with normal spleen cells in vitro, confer suppressive activity on the normal cells, and (c) specific antiserum against T. musculi alleviates the suppressive activity of spleen cells from infected donor mice. Investigations of the mechanism of immunosuppression have provided no evidence of a role for either suppressor T-cells or suppressor macrophages. Present evidence suggests that polyclonal B-cell exhaustion is the major immunosuppressive effect of T. musculi infection.

11. DEVELOPMENT OF COTYLURUS FLABELLIFORMIS METACERCARIAE IN UNINFECTED AND SCHISTOSOMA MANSONI-INFECTED BIOMPHALARIA GLABRATA. T.R. Fritsche. Dept. of Ecol. and Behav. Biol., and Sch. of Med., Univ. of Minn., Minneapolis, Minnesota.

Snails of the family Lymnaeidae are considered to be the normal second intermediate hosts of the duck strigeid Cotylurus flabelliformis. Physid and planorbid snails are entirely unsuitable second intermediate hosts for the development of these metacercariae unless sporocyst or redial stages of certain other species are present (Cort et al., 1941, J. Parasitol. 27:437). To further examine this phenomenon, two groups of the planorbid snail Biomphalaria glabrata (uninfected and Schistosoma mansoni-infected) were exposed to cercariae of C. flabelliformis to determine their susceptibility to penetration and development of the resulting metacercariae. Each group of 15 snails was exposed to 100 cercariae and examined 23 days post-infection. The cercariae actively penetrated the snails of both groups. The S. mansoni-infected snails averaged 9.5 tetracotyle larvae per snail whereas the uninfected group averaged 2.9 tetracotyles per snail. This difference is significant ($P < .01$).

Tetracotyles from the S. mansoni-infected snails appeared normal, while those in the uninfected group tended to be immature and in a state of degeneration.

12. Migration of Ornithodiplostomum ptychocheilus (Trematoda: Diplostomatidae) in the fish intermediate host. GARY L. HENDRICKSON, Iowa State University, Ames, Iowa.

The life cycle of Ornithodiplostomum ptychocheilus involves physid snails, cyprinid fish, and piscivorous ducks. Cercariae are capable of penetrating a variety of cyprinid fish in which they migrate to a "preferred" site and eventually encyst as neascus-type metacercariae. The "preferred" site of localization is the brain in at least some fish hosts (e.g. Pimephales promelas).

Most cercariae observed 0 or 1 hr post-infection (PI) were in the integument (epidermis, dermis, and subdermal connective tissue) or fins. By 1 to 2 hrs PI, cercariae had migrated into the deeper tissues, primarily body musculature and connective tissues. At 2 to 8 hrs PI, a large percentage of cercariae were within the cranial nerves and ganglia, spinal nerves and ganglia, and in the neural canal and spinal cord. Cercariae observed in nerves and ganglia were almost always in close proximity to the central nervous system. Most cercariae within the vertebral column were in the neural canal between neural arches and spinal cord. The percentages of cercariae in the neural canal and spinal cord peaked at 46% at 3 hrs PI, but remained at high levels until 24 hrs PI. These high values can only suggest that most cercariae arrive at the brain via the neural canal and spinal cord. Cercariae were first observed in the brain at 1 hr PI. Generally, percentages increased with time and migration was essentially complete by 48 hrs PI.

13. Scanning and Transmission Electron Microscopy of the Human Pubic Louse, Phthirus pubis (L.)1758. Cary K. Kuenn, Zoology Department, University of Wisconsin - Milwaukee, WI 53201

Morphology of the human pubic louse, Phthirus pubis, was investigated using transmission and scanning electron microscopy to characterize the egg(nit) and manner of oviposition and hatching. The most distinctive character of the egg of Phthirus pubis is the operculum composed of air cells. Air cells are specialized structures in the chorion layer consisting of an air chamber pierced by an external and internal micropyle. The endochorion consists of air spaces which are continuous on the entire inner border but do not connect with the inside egg space. Air is probably supplied to the embryo primarily by air entering the micropyle openings and is secondarily distributed around the embryo by diffusion through the continuous air spaces of the endochorion. Phthirus pubis oviposits by a similar manner as Pediculus. Pediculus walks backward along a hair which glides within the fork formed by the posterior lobes of the last abdominal segment and comes to a stop after the gonopods have grasped the hair. Cementing material is extruded. After a few seconds the insect walks forward. Eggs are completely freed and cemented to the hair in a fraction of a second. The difference in form of cement mass can be attributed to the form of the gonopods in the two genera. Egg bursters or hatching spines are present on the embryonic cuticle and aid in cutting the enclosing vitelline membrane. A pair of teeth below the egg bursters assist in forcing off the operculum.

14. Inhibition of Snail Host Fecundity by Schistosoma mansoni. Douglas L. Looker, University of Cincinnati, Cincinnati, Ohio

Fecundity in isolated Biomphalaria glabrata snails infected with Schistosoma mansoni was significantly reduced beginning 28 days post-infection. Reproductive rate was linearly correlated with time for control and infected snails with the latter showing a strong inverse relationship subsequent to day 21 postinfection. Protein content, determined by the method of Oyama and Eagle (1956), of eggs produced by infected snails was not significantly different from control snails, indicating that protein is not the limiting factor for egg production. In general, there was a definite inverse correlation between eggs/day and protein/egg for control snails, while infected snails showed no such correlation.

Calcium and magnesium concentrations in B. glabrata eggs are dependent upon the concentration of these ions in the incubation medium. Calcium and magnesium are rapidly leeched from eggs incubated in 0.85% NaCl suggesting a mechanism of ion exchange.

15. Penetration stimuli for a swimmer's itch cercaria. WILLIAM T. McGEACHIN, Iowa State University, Ames, Iowa.

Factors influencing penetration behavior of Gigantobilharzia huronensis cercariae were investigated. Cercariae were placed on excised chicken skin and on agar plates impregnated with low concentrations of chemicals known to be present in human and/or avian skin. G. huronensis cercariae are known to penetrate both types of skin. Of the chemicals tested, certain acidic amino acids, notably glutamic acid, and some fatty acids including two unsaturated members of the C_{18} series were found to be effective penetration stimuli. Cholesterol was found to be relatively ineffective as a penetration stimulus. These results suggest that penetration stimuli for this freshwater avian schistosome are more similar to those reported for cercariae of the human schistosomes than those reported for cercariae of an avian schistosome with a marine life cycle.

Elevated temperature (40°C vs. 25-26°C) was found to be an important stimulus, being essential for penetration of agar plates and increasing the percentage penetration into excised chicken skin.

16. Karyotypes of Schistosoma mansoni and S. japonicum. RICHARD W. MCKENZIE, University of Iowa, Iowa City, Iowa.

Karyotypes have been described for both Schistosoma mansoni (Puerto Rican and Egyptian strains) and S. japonicum from sporocyst tissues treated for 5 min. with 2% colchicine and stained for 10 min. in 2% lactoaceto-orcein. Chromosome morphologies of S. mansoni (Puerto Rican) differed from those described by Short & Menzel (J. Parasitol., 46: 273-287, 1960) in several respects: chromosome pair # 1 (the largest) was described as metacentric, whereas we find it to be acrocentric in both the Puerto Rican and Egyptian strains; chromosome pair # 2, described as acrocentric, are seen to be telocentric. Other minor differences from Short's descriptions exist.

17. Estimation of Growth Equation Parameters for Biomphalaria glabrata. GORDON G. PLORIN, Dept. of Ecology and Behavioral Biology, Univ. of Minn., Minneapolis, Minn.

Growth of snails and other organisms has been described by the von Bertalanffy equation:

$$L_t = L_{oo} (1-e^{-kt}) \quad ,$$

where L_t is the snail's size at age t, L_{oo} is the maximum average size and k relates the rate of growth. Parameters can be estimated using a Ford-Walford plot or using the method of Maximum Likelihood.

The Ford-Walford plot is a simple graphic method which does not require knowledge of the snail's age. However, measurements of size must be made at equal time intervals. Furthermore, the variances of the parameter estimates for L_{oo} and k may be quite large and cannot be calculated.

Estimation of the parameters by the method of Maximum Likelihood is more complex and usually requires a computer, but it produces asymptotically unbiased, minimum variance estimators for L_{oo} and k. Furthermore, the parameter variances can be calculated. Knowledge of the snail's age is required, but measurements need not be made at equal time intervals.

Computer-generated data and experimental results for aquarium reared Biomphalaria glabrata are used to compare these techniques of parameter estimation.

18. Radiation sterilization of the lone star tick. M. A. STANLEY University of Kansas, Lawrence, Kansas

Effects of eight different levels of gamma radiation on male Amblyomma americanum were studied. Cytogenetic abnormalities were observed from testicular squashes; reproductive capacity was tested by mating with untreated females. Radiation intensity was negatively correlated with number of females engorging and ovipositing, and with percent hatchability of egg masses.

19. A parasitologic survey for Mansonella ozzardi in the Comisaría del Vaupés, Colombia. L. K. LIGHTNER*, A. EWERT, Tulane University International Center for Medical Research, Cali, Colombia and A. CORREDOR, E. SABOGAL, Instituto Nacional de Salud de Colombia, Bogotá, Colombia.

As part of an extensive study of human filariasis in Colombia, investigations were initiated to determine the prevalence of Mansonella ozzardi in the Comisaría del Vaupés of eastern Colombia. During the course of the study, 347 individuals from various parts of Vaupés were examined. The overall infection rate for M. ozzardi was 49%, but the distribution of the parasite was not uniform throughout the Comisaría. Microfilariae of M. ozzardi were found in both venous blood samples and skin biopsies of infected individuals. The rate of infection was 55% for males and 42% for females and infection rates tended to increase with age. Microfilarial levels in 20 mm^3 thick blood films were generally low with 88% of the positive films having less than 50 microfilariae. Preliminary studies indicate that the vector of M. ozzardi in Vaupés, Colombia is a blackfly belonging to the Simulium amazonicum taxonomic complex.

20. The Phylogeny of Alloglossidium (Trematoda:Macroderoididae). William F. Font, University of Wisconsin-Eau Claire.

The genus Alloglossidium is unique in that most species become sexually mature in invertebrates. Alloglossidium corti has a 3-host life cycle pattern similar to most of the Macroderoididae, i.e. a snail first intermediate host, an encysted, non-gravid metacercaria in a second intermediate host, and a vertebrate definitive host. Other members of the genus, however, have life cycles that are modified by progenesis and, in some instances, elimination of the metacercarial cyst. These two processes have resulted in the evolution of species that are independent of a vertebrate definitive host, thus establishing a new ecological niche for these digenetic trematodes. A phylogenetic scheme for Alloglossidium and its allies is proposed.

21. Incidence and distribution of Echinococcus multilocularis in fox of southern Minnesota and northern Iowa. DANIEL E. LITTLE*and FREDERICK J. VANDE VUSSE, Gustavus Adolphus College, St. Peter, MN 56082.

Diagnosis of the first human case of larval Echinococcus multilocularis in the 48 contiguous United States in a woman from southwestern Minnesota prompted a reassessment of the status of this worm in the area. In the winter of 1977-78, 261 red fox (Vulpes vulpes) and 6 gray fox (Urocyon cinereoargenteus) from southern Minnesota and northern Iowa were examined. E. multilocularis was found in 134 red fox (51%) and 1 gray fox (17%). Studies on incidence in small mammals and farm cats are in progress.

22. Pairing behavior of Nematospiroides dubius under various in vitro conditions. JOHN M. ACKERMANN, Univ. of Notre Dame, Notre Dame, Indiana.

This study attempts to carry further the recently published work on pairing behavior of Nippostrongylus brasiliensis (by Roberts and Thorson in 1977). The related trichostrongyle nematode, Nematospiroides dubius, was chosen as possibly more active in mating, as it can frequently be recovered from its host in copula. Pairing of N. dubius in simple chambers filled with balanced salt solution at 37°C showed patterns similar to those for Nippo. brasiliensis : male-&-female show definite pairing at 24 hours in 25 to 40 percent of the test chambers, with lesser percent pairing in female-&-female tests and least in male-&-male. Inclusion of fluid from the gall bladder of the host mouse resulted in an increase in percent of worms which paired in 24 hours, affecting all permutations of sex pairs. Some results from using low oxygen and high carbon-dioxide gas mixtures over the pairing chambers, and using various solid substrates are discussed.

23. The Distribution of Postharmostomum Helicis in Anguispira Kochi Strontiana. BENJAMIN N. TUGGLE and JOHN L. CRITES Department of Zoology, The Ohio State University, 1735 Neil Ave. Columbus, OH 43201

The metacercaria of Postharmostomum helicis were recovered from the land snail Anguispira kochi strontiana, from Green Island, Lake Erie. Snails were collected from four geographically different zones of the island. An analysis of varience test was performed to detect significant differences in incidence of infection between zones at a confidence level of .05. Statistical correlations between snails with specific heights, diameters, and weights from designated zones versus the frequency of infection in the snails are examined and compared. Mean numbers of metacercaria found in snails from specific zones are also compared. In all zones combined the incidence of infection was 68.2%. Frequency of infection curves for snails with specific heights diameters, and weights all appears to show a negative binomial distribution for the population examined. Snails with a height of 18 to 22mm, a diameter of 21 to 25mm, and a weight of 2.5 to 5.0g show the greatest frequency of infection in all zones combined.

24. Trypanosoma lewisi: analyses of antigens provoking precipitin responses during infection in the rat. GARY W. LONG and DONALD G. DUSANIC, Indiana State University, Terre Haute, Indiana.

Trypanosoma lewisi is a protozooan parasite of rats. The parasite releases soluble exoantigens into the bloodstream of the host. These exoantigens can be detected by immunodiffusion in plasma collected from T. lewisi infected rats which have been immunosuppressed by treatment with antithymocyte serum. When the exoantigen containing plasma is reacted with antisera collected from infected rats in immunodiffusion studies, as many as 5 precipitin lines are formed. Chromatographic separations of the exoantigens on Sephacryl S-200 columns result in antigenic activity detected in all three protein peaks eluted during fractionation. Some of the exoantigens appear to have a cell surface origin. Adsorption of antisera with live trypanosomes eliminates activity towards 2 of the exoantigens. In addition, agglutination of the parasites by immune serum is blocked by absorption with exoantigens. Comparisons of the exoantigens with trypanosome extracts by immunodiffusion and absorption analyses demonstrate antigens common to both preparations. Among the exoantigens of T. lewisi are some which may be released from the cell surface. These exoantigens may provide a means by which T. lewisi can escape the immune responses of the host. (Supported by NSF Grant PCM 76-11922)

25. Motility of the ameboid spermatozoa of Ascaris suum: a cinematographic study. M. K. Abbas and G. D. Cain, University of Iowa Iowa City, Iowa

The spermatozoa of Ascaris undergo morphological and physiological changes during and after copulation. These changes, termed "activation", involve the visible transformation of spherical, immotile sperms into morphologically ameboid cells. Due to the lack of direct evidence for motility of activated sperms, we have adapted a recently-developed technique for activation in vitro so that cells may be observed for long periods following activation. Sperms were activated in phosphate-buffered saline (PBS, pH 7.4) by addition of an extract of the male glandular vas deferens. They were then placed in a tissue-culture chamber and their motility was recorded by time-lapse cinematography. Several types of motion were exhibited by cells and by their lamellipodia and filopodia. The cell is capable of rotational motion, while the lamellipodia exhibit a rapid, extension-retraction behavior in a wave-like fashion. The lamellipodium of each cell bears several needle-like filopodia, which are capable of sweeping motion, often followed by saltatory retraction. Although progressive forward movement was not observed, we are attempting to induce such motion by using various substrates that enhance surface attachment of cells.

(Supported by NIH Post-doctoral Fellowship #1-F32-A1-05646).

Zionsville
Royalton
Castleton
Allisonville
Fishers Sta.
Oaklandon
McCordsville
Lawrence
Fort Benjamin Harrison
Geist Reservoir Recreational Area and Wild Life Refuge
Williams Creek
Meridian Hills
Ravenswood
Shore Acres
North Crows Nest
Crows Nest
Rocky Ripple
Spring Hills
Highwoods
Millersville
Augusta
New Augusta
Traders Point
Eagle Creek Reservoir
Wynnedale
Speedway
Clermont
INDIANAPOLIS
Warren Park
Cumberland
Mt. Comfort
Julietta
Tremont
Lynhurst
Ben Davis
Bridgeport
Six Points
Mars Hill
Maywood
Beech Grove
New Bethel
Home Croft
Southport
Pleasant
Area covered by detailed street map of Indianapolis
INDIANA CENTRAL UNIVERSITY
HANNA AVE.
US 31
St. Francis Hospital
BEECH GROVE
Southern Plaza Shopping Center
AMCOP
Holiday Inn
PENN. CEN. R.R. YARDS & SHOPS
WASHINGTON

Report of the 29th Annual Midwest Conference of Parasitologists
June 9 - 11

The 29th Annual Midwest Conference of Parasitologists was held in the Veterinary Medicine Complex at Kansas State Univ., Manhattan, June 9-11, 1977. William D. Lindquist was in charge of local arrangements.

About 70 members attended the 29th meeting. There were ten demonstrations and 25 papers given in formal sessions. In addition a Wildlife Disease Panel consisting of Dr. Gerald Schmidt, Dr. Charles Hibler, Dr. Glenn Hoffmann, and Dr. James Daly presented papers. Dr. Austin MacInnis gave the banquet address entitled "Snails, Dollars, D.N.A., and Worms".

The Herrick Award ($200 supported for the 11th year by Eli Lilly) was presented to Madeline Fletcher for a demonstration entitled "Genetics Control of Schistosomiasis; an Exploration of the Effects of Genetic Manipulation of Intermediate Host Populations". The LaRue Award ($200 supported by Ann Arbor Biological, Bayvet, private donations and dues) was awarded to Lori Smurro and James Ketchum for their paper entitled, "Effect of Trypanocidal Diamidines on Lysosomes of Trypanosoma brucei".

The membership was polled by mail for dues; 61 responded affirmatively and 17 responded negatively. The dues for AMCOP are now $2 for students and $3 for faculty. At the business meetings Friday afternoon and Saturday morning routine business was dispatched quickly, but extended discussion concerned the Herrick and La Rue Awards. A 3-part proposal setting guidelines for awards formulated by the Policy Committee was tabled. Presiding Officer Dunagan was instructed to appoint a committee (Ameel, Coil, and Cain) to study the matter further and to distribute a ballot to the membership.

Dr. Martin Ulmer represented AMCOP at the ASP council meeting last August in San Antonio. He reported at length on actions taken by the ASP council.

The matter of regional representation was brought up again this year. In this regard an information-sheet written by the Northern California Parasitologists was distributed and Martin Ulmer discussed the "Kemp Proposal" (formulated by the ASP committee on regional representation). The membership voted approximately 64 in favor (6 dissenting) to have regional representation as outlined in the "Kemp Proposal".

The site committee selected Indianopolis (Central Indiana University) for the 30th meeting on June 15-17, 1978.

The officers for 1978 are:
Ernest Hugghins, Presiding Officer
Milo Brandt, Program Officer
William Coil, Sec.-Treasurer and
AMCOP Representative to ASP Council

Respectfully Submitted,

William H. Coil

William H. Coil
Sec.-Treasurer

Report of the American Society of Parasitologists Council

The Council met at 1:30 PM on August 14, 1977 in Las Vegas, Nevada. The following matters were discussed.

1) The official position of Archivist was established with the recommendation "that the president appoint (with the approval of at least 2/3 of Council)" the Archivist to serve a 5 year renewable term.

2) Dr. Justus F. Mueller & Dr. Raymond M. Cable, both charter members of ASP, were elected to Emeritus membership in the Society & the Honorable Miriam Rothschild were recommended for honorary membership.

3) Business Advisory Committee recommendations:

   a) Increase in Journal subscription rate by $5, beginning in 1978.

   b) Reduction in press run of the Journal from 3900 to 3700.

   c) Council passed a recommendation that beginning January 1, 1978, 75% of the income from the Endowment Fund be reserved for "deserving activities of long-term value & interest to the Society to be determined by the ad hoc committee on the Endowment Fund."

4) Dr. Francis Kruidenier, chairperson of the ad hoc committee on the World Federation of Parasitologists, submitted a revised constitution of the WFP which was approved in principal by Council. The document will be considered for adoption by the 4th International Congress of Parasitology which meets in Warsaw, Poland in August, 1978.

5) An ad hoc committee on travel to ICOPA IV has provided economical travel to the Warsaw meeting. Information pertaining to travel arrangements have been published in the Journal.

6) The Editor Search Committee recommended the establishment of the position of Editor-in-Chief & the creation of 5 sectional editors. The committee is continuing its deliberations.

7) An ad hoc Committee appointed by President Ulmer to consider the ASP Charter & By-Laws suggested several modifications. These modifications are currently under study.

8) The ad hoc committee on Communication between Council & Membership submitted its report of the poll conducted with the affiliate Societies concerning regional representation. The Committee was instructed by the President to prepare a final report & a formal proposal for Council consideration at the Chicago meeting in November.

9) The following officers were elected:

President - Elect - A. Murray Fallis

Vice-President - Roy C. Anderson

Secretary-Treasurer - Clayton R. Page

Council Members - Sue Carlisle

Maurice D. Little

Nominating Committee - Donald Duszynski, Chairman

Murry Dailey

John Holmes

Kenneth Todd

Bernard Freid

Ronald Fayer (alternate)

10) Future Meeting Sites

1978 - Chicago - Joint meeting with American Society of Tropical Medicine & Hygiene

1979 - University of Minnesota Minneapolis

1980 - San Francisco

11) Recipient of the 1977 Henry Baldwin Ward Medal was Dr. Gilbert A. Castro.

Respectfully Submitted

Report of the Ad Hoc Committee on Communication between Council and Membership

This Committee was appointed by President Marietta Voge at the 1976 ASP meeting in San Antonio, Texas and was instructed to examine ways of increasing communication between Council and Membership. The original Committee was composed of Drs. Bert Babero, Murray Dailey, Martin Ulmer, Harry Herlich, Gerald Esch, Ming Wong, Donald Duszynski, Terence Hayes, and Michael Kemp (Chairperson). During the tenure of the Committee Dr. Ulmer was replaced by Dr. William Coil, and Dr. Wong was replaced by Dr. William Balamuth, then Dr. Donald Heyneman.

The Committee met in San Antonio on August 24, 1976 and discussed several ways of implementing communication between Council and Membership and between the various affiliates. It was decided that a greater exchange of information in terms of meeting time and activities would be conducted between the affiliates. The Committee discussed at length the possibility of establishing regional elections of Council members. It was unanimously decided to pursue this suggestion as a means of strengthening the communication between Council and Membership. Accordingly, Dr. Kemp was authorized to construct a rough draft of a proposal detailing the rationale for such a plan.

A rough draft of the proposal rationale plus an appended plan of implementation was circulated to the Committee on November 23, 1976 with a request for reaction and criticism. All Committee members responded affirmatively to the rough draft and suggested several ways of improving the proposal. The ammended proposal was circulated to the Affiliate representatives on January 19,1977 for dissemination to their members. Reaction of the Affiliate

Organizations to the proposal are as follows:

	For	Against
Annual Midwest Conference of Parasitologists (No official count taken, but approximately)	64	6
Helminthological Society of Washington (No official count taken - apparently the number of proponents and opponents are approximately equal with most of the membership remaining uncommitted	-	-
New Jersey Society for Parasitology	34	0
Northern California Parasitology (No official action taken. The NCP supports a continuing discussion of the proposal).	-	-
Rocky Mountain Conference of Parasitologists	34	0
Southeastern Society of Parasitologists	30	1
Southern California Parasitologists	4	17
Southwestern Association of Parasitologists	12	27
	178	51

The Committee reported its findings to Council on August 14, 1977 at the Las Vegas ASP Meeting. The Committee's report was accepted by Council and President Martin Ulmer instructed the Committee to study the matter further with the ultimate goal of submitting a formal proposal for Council consideration. The proposal is included with this report. The Committee recommends strongly that Council approve the proposal and move to implement it at the earliest convenience.

Respectfully Submitted

Michael Kamp

Proposal for the Establishment of Regional Representation to Council of the American Society of Parasitologists

Prepared by the Ad Hoc Committee on Communication between Council and Membership

Committee Composition - Murray D. Dailey, William Coil, Harry Herlich, Gerald Esch, Donald Heyneman Donald Duzynski, Terence Hayes, Bert Babero, and Michael Kemp (Chairperson).

Rationale For Regional Representation:

The Principal of Regional representation is a basic tenant of any democratic government. At the present time there are no guidelines for assuring this sort of representation to ASP Council. As a consequence, all Councilors may be from one region, state, or even city. Regional representation would accomplish the following objectives: 1) it would insure an equal distribution of Councilors over the United States; 2) it would insure an outlet for regional problems to the whole Council and further insure that at least one Councilor had a first hand understanding of such problems; 3) it would insure a more intimate involvement of the membership in the selection of their representative; 4) it would increase accessibility of the membership to their Councilor (Particularly if both are active members of an ASP Affilate Organization); 5) it would decrease the possiblity for domination of the Council by a regional or special interest group.

Implementation of Regional Representation:

Under the present By-Laws, the Nominating Committee composed of 5 members and an alternate, is responsible for selecting and submitting no fewer than 2 nominees for the offices of President-Elect, Vice President, and Council vacancies, at least one nominee for Secretary-Treasurer in those years that

the tenure of that office terminates, and 9 nominees for the succeeding Nominating Committee. The slate of nominees is then presented to the membership for election.

It is proposed that the United States be divided into 6 geographical regions, based on membership distribution (see enclosed map). A proviso will be included that the geographical regions may be modified by action of Council if dramatic shifts in membership distribution occurs. Each of these regions must be represented on both the Council and Nominating Committee. The revised Council will consist of 2 at-large and 6 Regional Councilors plus non-voting representatives of the Affilate Societies, while the Nominating Committee will consist of 1 at-large and 6 Regional Representatives. Those provisions of the ASP By-Laws dealing with the rights of the membership to nominate candidates in addition to those proposed by the Nominating Committee will be retained for At-Large Candidates and regionalized for Regional Candidates. The duties of the Nominating Committee, relative to the selection of candidates for President-Elect, Vice-President, Secretary-Treasurer, and At-Large Councilors will remain unchanged. The Nominating Committee will be further responsible for the nomination of 2 At-Large and 2 candidates from each geographical region for subsequent election to the succeeding Nominating Committee.

The resulting ballot will be voted on by all qualified ASP members. Voting for Regional candidates for Council and Nominating Committee will be limited to the membership of the region in question. Members residing outside the 6 regions of the United States will vote for At-Large Candidates only.

John Ackermann
Dept. of Biology
Univ. of Notre Dame
Notre Dame, IN 46556

Dr. Donald J. Ameel
Dept. of Zoology
Kansas State University
Manhattan, Kansas 66502

Grace L. Baker
Columbia College
Columbia, Missouri 65201

Dr. William J. Bemrick
College of Vet. Med.
University of Minnesota
St. Paul, Minn. 55101

Mr. Milo C. Brandt
Dept. of Veterinary Research
Eli Lilly & Co., Box 708
Greenfield, Indiana 46140

Maryann Bricker
Dept. of Zoology
University of Iowa
Iowa City, Iowa 52242

Raymond Cable
Dept. of Biological Sciences
Purdue University
Lafayette, Indiana 479 7

George D. Cain
Department of Zoology
State University of Iowa
Iowa City, Iowa 52240

W. H. Coil
Systematics and Ecology
University of Kansas
Lawrence, Kansas 66045

Thomas W. Cook
Iowa State University
Dept. Zoology
Ames, Iowa 50011

Dr. Robert M. Corwin
Dept. Vet. Microbiology
Univ. of Missouri
Columbia, Missouri 65201

Dr. B. Dada
Dept. of Infect. Dis.
Kansas State Unversity
Manhattan, Kansas 66506

David Daniell
Dept. of Zoology
Butler University
Indianapolis, Indiana 46207

Charles W. Dickerson
Research Parasitologist
Ralston Purina Research
Grey Summit, Missouri 63039

Raymond D. Dillon
Dept. of Zoology
University of South Dakota
Vermillion, S. D. 57069

Dr. Tommy T. Dunagan
Dept. of Physiology
Southern Ill. Univ.
Carbondale, Illinois 62901

Dr. Arthur E. Duwe
Lake Superior State College
Sault Ste. Marie, Michigan 49783

William G. Dyer
Dept. of Zoology
Southern Illinois University
Carbondale, Illinois

Stanley Eisen
9612 Lydia, Apt. D
Kansas City, Missouri 64131

Adela Elwell
Route #2
Bemidji, MN 65501

Belinda Fender
Department Vet. Microbiology
Univ. of Missouri
Columbia, Missouri 65201

Donald L. Ferguson
Veterinary Pathology
Univ. of Nebraska
Lincoln, Nebraska 68588

Madeleine Fletcher
Dept. of Biological Sciences
Purdue University
Lafayette, Indiana 7907

Thomas Fritsche
Dept. of Ecol.
Univ. of Minnesota
Minneapolis, Minnesota 55455

Dr. George Garoian
Dept. of Zoology
Southern Illinois Univ.
Carbondale, Illinois
62901

Donald Gilbertson
Dept. Ecol. & Behavior
Univ. of Minnesota
Minneapolis, Minn.
55455

Gail Gordon-Cox
7610 Ward Parkway
Kansas City, Missouri
64114

Robert Grassmick
Zoology Dept.
Miami University
Oxford, Ohio 45056

Dr. John H. Greve
Dept. of Vet. Pathology
and Parasitology
Ames, Iowa 50010

W. Hugh Headlee
Dept. of Microbiology
Indiana Univ. School of
Indianapolis, Indiana
45207

Dr. Ernest J. Hugghins
Ent.-Zoology Dept.
South Dakota State Univ.
Brookings, South Dakota
57006

Hugo A. James
Department of Biology
Bridgeport University
Bridgeport, Conn. 06602

Edward L. Jeska
Vet. Med. Res. Inst.
Iowa State University
Ames, Iowa 50010

Reid Jilek
Dept. Zoology
Southern Ill. University
Carbondale, Illinois 62901

W. J. Johnson
Dept. of Zoology
University of Iowa
Iowa City, Iowa 52242

Janet Sue Keithly
450 E. 63rd Street
New York, New York 10021

Amy Doryan Keppel
Dept. of Zoology
University of Nebraska
Lincoln, Nebraska 68508

Donald J. Klemm
Aquatic Biology Section
Environ. Monit. & Supt. Lab.
Environmental Protect. Agency
Cincinnati, Ohio 45268

Kristin Komschilies
Dept. of Biology
Gustavus Adolphus College
St. Peter, Minnesota 56082

Stanley E. Leland, Jr.
Dept. of Infectious Diseases
Kansas State University
Manhattan, Kansas 66502

Dr. Norman D. Levine
College of Veterinary Medicine
University of Illinois
Urbana, Illinois 61081

William D. Lindquist
Dept. of Infectious Dis.
Kansas State University
Manhattan, Kansas 66502

Eric Loker
Zoology Department
Iowa State University
Ames, Iowa 50010

Philip Lo Verde
Dept. of Bio. Sci.
Purdue University
Lafayette, Indiana 47907

William McGeachin
Dept. of Zoology
Iowa State University
Ames, Iowa 50011

Gerald McLaughlin
Dept. of Zoology
University of Iowa
Iowa City, Iowa 52242

Dennis McNair
Dept. of Zoology
Southern Illinois University
Carbondale, Illinois 62901

Roy D. Melendez
Dept. of Infect. Diseases
College of Vet. Medicine
Manhattan, Kansas 66506

Fred P. Meyer
Fish Control Lab
Bureau of Sports, Fisheries
and Wildlife; Box 862
LaCrosse, Wisconsin 64501

Donald Miller
Dept. of Physiology
Southern Illinois Univ.
Carbondale, Ill. 62901

Dennis Minchella
Dept. of Biol. Sci.
Purdue University
Lafayette, Indiana 47907

Dr. Lawrence G. Mitchell
Department of Zoology
Iowa State University
Ames, Iowa 50010

Dr. Miklos Muller
Rockefeller University
E. 66th and York Avenue
New York, New York 10021

Donal G. Myer
Div. of Sci. and Tech.
Southern Illinois Univ.
Edwardsville, Illinois
62025

Dr. Paul M. Nollen
Department of Biology
Western Illinois Univ.
Macomb, Illinois 61445

Lewis Peters
Dept. of Biology
Northern Michigan Univ.
Marquette, Michigan
49855

P. M. Peterson
Box 3511
Madison, Wisconsin 53704

Edwin Powell
Dept. of Zoology
Iowa State University
Ames, Iowa 50011

Robert L. Price
Dept. of Zoology
Southern Illinois Univ.
Carbondale, Illinois
62901

Mary Hanson Pritchard
School of Life Science
University of Nebraska
Lincoln, Nebraska 68

R. K. Raj
Department of Zoology
University of iowa
Iowa City, Iowa 52242

Kenneth S. Todd
Veterinary Medicine
Univ. Illinois
Urbana, Ill. 61801

D. Wood
Dept. of Zoology
University of Iowa
Iowa City, Iowa 52242

Gary L. Hendrickson
Dept. of Zoology
Iowa State Universit
Ames, Iowa 50011

Dr. Bill Ridgeway
Eastern Ill. Univ.
Charleston, Illinois 61920

Carl Train
Dept. of Biology
Southeast Missouri State
Cape Girardeau, MO 63701

Dr. William J. Zimmerman
Vet. Med. Res. Institute
Iowa State University
Ames, Iowa 50010

William Sofield
Department of Infectious Dis.
Kansas State University
Manhattan, Kansas 66506

Dr. Martin J. Ulmer
Dept. of Zoology
Iowa State University

Lori Smurro
Dept. of Biology
Southern Illinois University
Edwardsville, Illinois 62025

Jane A. Starling
Department of Biology
University of Missouri
St. Louis, Missouri 63121

Dr. Frederick Vande Vusse
Dept. of Biology
Custavus Adolphus College

James Ketchum
Department of Biology
Southern Illinois University
Edwardsville, Illinois 62026

Jerry Stumpt
Dept. of Ecol. and Behavioral Biology
University of Minnesota
Minneapolis, MN 54455

Richard Wacha
Dept. of Biology
Drake University
Des Moines, Iowa 50311

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

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

Elizabeth L. Waffle
Dept. of Biology
Eastern Michigan University
Ypsilanti, Michigan 54455

Dr. Donald G. Dusanic
Dept of Life Sciences
Indiana State University
Terre Haute, Indiana 47809

Stephen John Taft
Dept. of Biology
University of Wisconsin
Stevens Point, Wisconsin 54481

Dr. Jean Wateror
Dept. of Biology
Wichita State University
Wichita, Kansas 67200

Dr. Harold L. Rundell
Department of Biology
Morningside College
Sioux City, Iowa 51100

DISTRIBUTION OF DIROFILARIASIS IN ILLINOIS COUNTIES, Benedict J. Jaskoski, Loyola University, Chicago, 60626. Prior investigation revealed the wide-spread occurrence of the dog heartworm (Dirofilaria immitis) in Illinois; the goal here was an assessment of the problem in each county. Veterinarians and Farm Agents were contacted and asked to submit estimates of dirofilariasis in their respective county. Identification of D. immitis and also Dipetalonema reconditum was also done on selected blood samples. Responses revealed that the dog heartworm is present in every one of Illinois' counties. Reported concentrations varied from less than 2% to 100%. Major concentrations were in several southern and central counties. The number of responses received varied with distribution of Illinois veterinarians. Dirofilariasis is thus recognized as a problem in Illinois extending to each county. Charts are presented in the demonstration illustrating the relative incidence by county as reported by veterinarians as well as relation of this report to others in Illinois.

W. H. Coil
Systematics and Ecology
University of Kansas
Lawrence, KS 66045