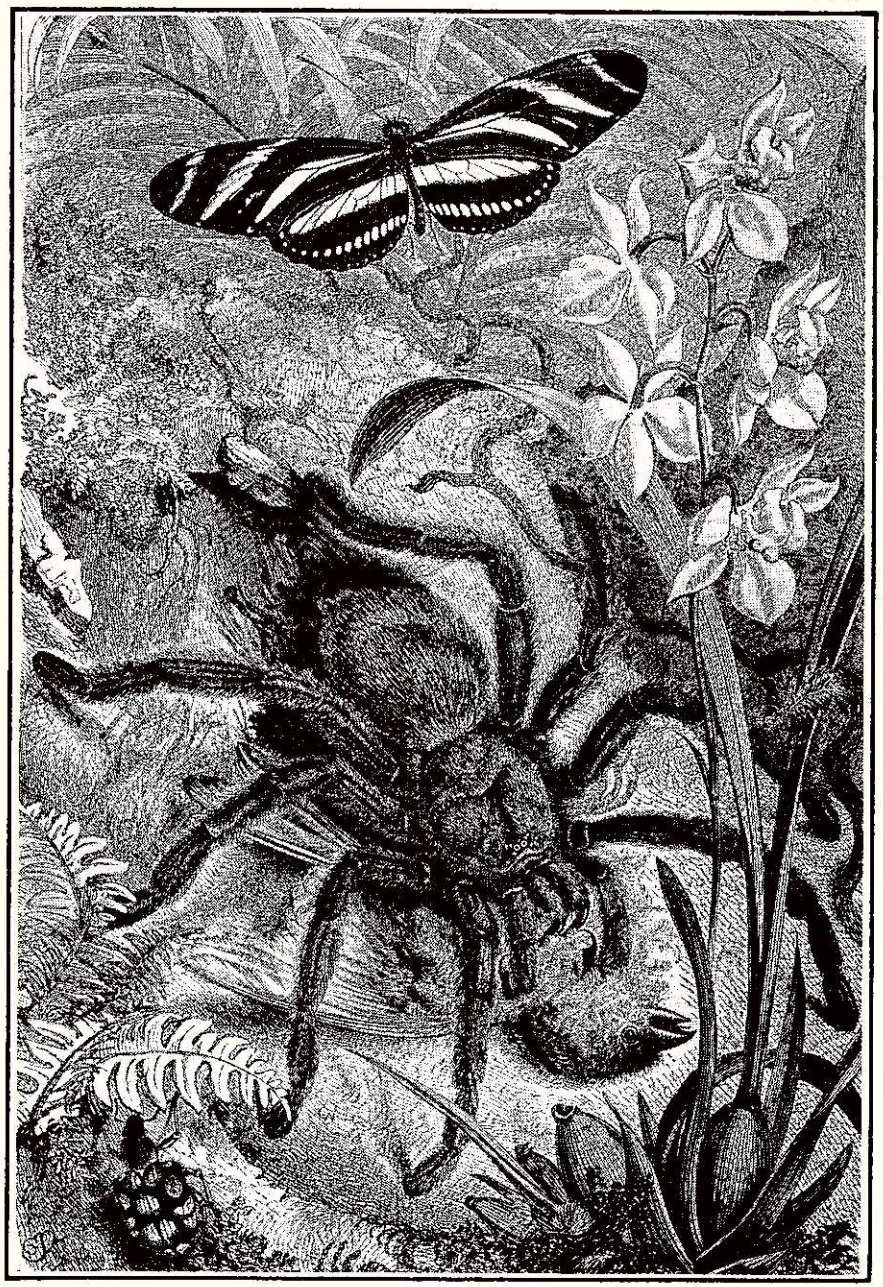
# American Arachnology

*The Newsletter of the American Arachnological Society*



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AMERICAN ARACHNOLOGY #29

May, 1984

In this issue of AMERICAN ARACHNOLOGY:



AMERICAN ARACHNOLOGY is the newsletter of the American Arachnological Society and is sent only to society members. For information on membership, write Dr. Norman Platnick, Membership Secretary, American Arachnological Society, Department of Entomology, The American Museum of Natural History, New York, NY 10024, USA. Members of the Society also receive the JOURNAL OF ARACHNOLOGY three times a year.

Correspondence, submissions and requests for back issues of AMERICAN ARACHNOLOGY should be directed to the editor, Dr. William A. Shear, Biology Department, Hampden-Sydney College, Hampden-Sydney, VA 23943, USA.

Notice of a change of address should be sent only to the Membership Secretary (see above). To do otherwise merely delays the change; all mailing for the Society is done from a list maintained by the Membership Secretary.

# 1984 MEETING IN NEW ORLEANS

## AMERICAN ARACHNOLOGICAL SOCIETY

International Convention--New Orleans, Louisiana--June 19-23, 1984

Preregistration: A registration fee of $26 for regular members, $16 for student members or $30 for nonmembers and a $20 housing deposit per person should be received by April 2. These are refundable in case of cancellation. A late fee of $5 will be charged after this date. Upon receiving the fee and deposit, the Host will send a receipt and confirmation of housing, in addition to a map of the area and last minute details.

Call for Papers: Abstracts should be received by May 1. The Abstract should be typed single spaced in a rectangle no larger than 4 inches high X 6 inches wide ( 10 x 15 cm). It should include the author's name but not address. You will be informed in mid-May of your place on the program. For those desiring a formal letter of invitation and/or acceptance of the Abstract, please contact the Host.

Transportation: New Orleans is accessible from air and road. Taxi fare from the airport to the campus is $18 ( $6 each for 3 people). The Loyola University campus is conveniently located on the St. Charles streetcar line.

Registration: At Buddig Hall on the Loyola University campus-- Tuesday, June 19 ( 6PM-10PM) and Wednesday, June 20 ( 8AM- 10AM). Late night arrivals may go to the main desk at Buddig which will be manned 24 hours per day.

Sessions: To be held in Nunemaker Hall, Loyola University-- Wednesday, June 20 through Friday, June 22. Papers will be fifteen minutes in length. A 35 mm slide projector, 8 and 16 mm projectors and coffee will be available. Poster papers are welcome; please inform the Host when submitting your Abstract if you wish to give a poster paper.

Housing: Daily rates for Buddig Hall are: student members- $18 per person double occupancy and $30 for a single; regular members- $20 per person double occupancy and $30 for a single. Hide-a-away bed and linen is available for children for a one time charge of $10. Please, this is meant for families only. Rooms will be available for two nights after the meetings (June 24,25) for those wishing to stay for the World's Fair. This will cost an additional $5 per person per night. At registration you may make arrangements to extend your visit even longer.

Meals: Several restaurants can be found on campus and nearby.

Field Trips: Saturday, June 23 we will have a collecting trip at the F. Edward Hebert Center of Tulane University. This is a hardwood, bottomland forest complete with an impressive diversity and biomass of spiders. Sunday, June 24 a canoe trip in Honey Island Swamp can be arranged for those wishing to see cypress and bayous. This will cost about $18 per person. A nature walk to the same area can also be arranged for that Sunday. Cost would be about $6 per person. Final arrangements for the latter two trips will depend upon numbers of individuals interested.

Banquet: Thursday, June 21 a Louisiana style dinner featuring creole and cajun food. Local biologists will present a slide show on the diverse plant and animal life of Louisiana. Tickets are $11.50.

Roth Student Award: A $100 award will be given for the best student presentation.

Other Events: Evening socials ( Wednesday night at the Christenson house, Tuesday and Friday nights at Buddig Hall); slide swap (bring your extras for trading); group photo; T-shirts (with appropriate design); and films (please volunteer films or submit requests).

Local Host: Terry Christenson Department of Psychology Tulane University New Orleans, Louisiana 70118. (504) 865-5331

PREREGISTRATION FORM: AMERICAN ARACHNOLOGICAL SOCIETY MEETING

NEW ORLEANS, LOUISIANA--- JUNE 19-23, 1984

In order to insure your housing, this form or a copy in addition to the registration fee and housing deposit should be received no later than April 2. A $5 late charge will be added after this date.

Name _____

Address _____

_____

Registration fee:

| | | |
|---|---|---|
| Regular member | $ 26 | = $ _____ |
| Student member | $ 16 | = $ _____ |
| Nonmember | $ 30 | = $ _____ |

Housing Registration:

First night: June _____ Last night: June _____

| | | | |
|---|---|---|---|
| Double occupancy: | Student member | $ 18 x _____ nights | = $ _____ |
| | Regular member/nonmember | $ 20 x _____ nights | = $ _____ |
| Single occupancy: | Student member | $ 30 x _____ nights | = $ _____ |
| | Regular member/nonmember | $ 30 x _____ nights | = $ _____ |
| Hide-a-away bed and linen (families only) | | $ 10 x _____ children | = $ _____ |

I wish to share a room with _____

Indicate events in which you plan to participate:

Wednesday night social at Christenson house _____
Thursday evening banquet- $11.50 x _____ tickets = $ _____
Saturday morning collecting trip _____
Sunday morning canoe trip _____
Sunday morning nature walk _____

I would like information concerning:

Babysitters _____
Sightseeing _____
Other _____

Amount Remitted:

| | |
|---|---|
| Registration fee (refundable at cancellation) | = $ _____ |
| Housing deposit ($ 20 per person; also refundable) | = $ _____ |
| Housing (can be paid at registration) | = $ _____ |
| Banquet (can be paid at registration) | = $ _____ |
| Total | = $ _____ |

Make check payable to: American Arachnological Society and send to Terry Christenson Department of Psychology Tulane University New Orleans, Louisiana 70118

## REPORTS ON ONGOING RESEARCH

Recently, we asked a number of active arachnological researchers to write a few pages for the newsletter on current activities in their laboratories. The contributions of those who responded are reprinted below. We hope that these brief accounts will help members of the society keep abreast of forthcoming developments in the field. It's a way of making the newsletter more "newsy!"

Before going on to my research, I should say that at long last, the manuscript of our multi-author book, "Spiders: Webs, Behavior, and Evolution," has gone to the publisher (Stanford University Press) and should appear at your bookstore in 10 months.

My research seems to be in a state of permanent flux. Arachnids continue to occupy my attention, specifically opilionids. I have in rough manuscript a cladistic analysis of the Family Ischyropsalididae, which I now believe to be the most primitive "Palpatores." The paper will include a description of a new monotypic genus from Idaho and Washington which appears to have the tergite over legs III not incorporated into the cephalothorax. Also in preparation is a description of a unique family of cyphophthalmids from a cave in East Africa. Somewhat farther in the future lies work on the oncopodids, an advanced "Laniatores" family from the tropics of Asia.

Millipeds have crept in again. In press at "Myriapodology," our companion journal, is a description of a new Macromastus (Conotylidae) from a lava tube. As I finish yet another paper on the Mexican cave fauna, the urge arises to revise the family Rhachodesmidae, the Blue Millipeds. This highly unusual family is endemic to Mexico and Central America, and may eventually include 150-200 species. Some of them really are blue. Why blue? This would be a major question about the group; there is no record I know of that cites blue as an aposematic color--and the rhachodesmids, in any case, seem unable or unwilling to discharge a secretion as most polydesmoids do.

And, of course, the Gilboa fossils. Now supported by grants from NSF and the Jeffress Trust, I am studying the fossils with a Nomarski Interference Contrast microscope. New material just digested from the rock a few months ago includes evidence of a second trigonotarbid genus, real spiders, different centipeds, and at least one more species of exquisitely preserved mite. Our preliminary report will appear very soon in the pages of "Science." This work is being done in collaboration with paleobotanists Doug GRIERSON and Pat BONAMO of SUNY/Binghamton. Roy NORTON is our "mite man."

This term I have enjoyed teaching a seminar based on Lynn MARGULIS' wonderful book, "Symbiosis in Cell Evolution." Having tracked this line of research over the years, it is exciting to see it winning almost universal acceptance. Last spring I attended a Chautauqua run by Lynn and her students at Mt. Holyoke College, and I am hoping to be accepted for a laboratory short course in the subject at the Woods Hole Marine Biological Laboratory this summer--which is why you may not see me at New Orleans (can't afford both). Will I switch my research now to termite gut ecosystems, or microbial mats? Hmmmmm....

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Having just finished a revision of the African funnel-web mygalomorph spider genus Allothele (Dipluridae), I am resuming my nearly completed revisionary study of the related genus Euagrus. Erroneously assigned to Euagrus by some authors, Allothele species have, like Euagrus, male leg II mating claspers, but the females have a pair of long, distinctively hair-lined spermathecal trunks (with each trunk usually terminating in two spermathecal bulbs in such a way that the whole affairs often looks amusingly like a pair of hairy human legs). Euagrus, which will consist of about 15 species at the conclusion of my study, ranges from Arizona and Texas south to Costa Rica and is the most abundant mygalomorph spider genus in Mexico. Fortunately, I am finding that spermathecal form, if carefully examined, is a more useful species-diagnostic character in Euagrus than it is in the antrodiaetid genera that I have revised. Male mating clasper form and palpal form allow easy diagnosis of all Euagrus species. For this and other reasons, as I pointed out in a paper I presented at the arachnological congress last summer, this genus appears well suited for testing hypotheses (including Bill EBERHARD's sexual selection by female choice hypothesis) regarding the functions of species-specific male mating structures.

Small non-taxonomic projects on the biology of two primitive spiders are also in progress. Last fall I observed and photographed several Mictohexura montivaga matings with a stereomicroscope and will soon prepare drawings and a description of that process (the male tibia I claspers always grip the base of the female's pedipalps). Additionally I am analyzing the results of a year-long study of a dense population of Hypochilus thorelli in the Great Smoky Mountains National Park. The data confirm Ian FERGUSON's hypothesis that this species takes two years to develop from egg to maturity. The data also show that adults do not survive for more than one breeding season. In addition, I have found that, although adult male body size (cephalothorax length and tibia I length) in this population is highly variable, palpal dimensions are significantly less variable. I'll probably present these results at the New Orleans meetings this summer.

My next taxonomic project will be revisions of both the American genus Ischnothele and the Old World genus Thelechoris, two diplurid genera in the same subfamily as Euagrus which spin voluminous entrapment webs with their impressively long spinnerets. I collected many Ischnothele specimens during my recent Mexican and Costa Rican trips and have examined enough material in these genera from South America and Africa to see that they each contain about as many species as Euagrus. I would appreciate receiving loans of these genera from anyone who may have them in their personal collections.

Jackie PALMER is busy in both my lab and Rick HARRISON's lab finishing her M.S. thesis study of the histochemistry and anatomy of the silk production system of Euagrus. Additionally, she and Rick are looking at Microhexura silk glands. (Jackie will continue her comparative study of silk production systems this fall at Harvard with Herb LEVI.) Robb BENNETT is finishing his manuscript on the taxonomy and natural history of Cicurina bryantae and is cranking out a series of excellent drawings of palpal characters and epigyna for his M.S. thesis revision of the agelenid genus Wadotes. He hopes to present a phylogeny of Wadotes species (based on a study of male characters) at the New Orleans meetings.

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The order Schizomida includes 74 New World and 50 Old World extant described species, four of which belong to the New World family Protoschizomidae, and the remainder to the Schizomidae. The systematics of the order is presently being studied by James R. REDDELL, Texas Memorian Museum, University of Texas, Austin, Texas, in collaboration with James C. COKENDOLPHER, Texas Tech University, Lubbock, Texas.

Since the revision of the New World Schizomida by ROWLAND and REDDELL (1979-1981) a few previously unavailable types and extensive new collections from this region have become available for study. Approximately 25 new species are now known from the West Indies, Mexico, Costa Rica, Panama, Colombia, Surinam, and Ecuador. In addition, extensive berlese samples and other material from these same regions have yielded valuable information on variation and on the distribution of both described and undescribed species. Once the description of the new material is published it should be possible to discuss in some detail the zoogeography and phylogeny of the New World fauna. Papers now in press or nearing completion include the description of a new troglobitic (cave-adapted) Schizomus from Ecuador; a description of the male of Schizomus sbordonii (Brignoli) from Mexico; a revision of the family Protoschizomidae (including descriptions of new species and the first description of the female spermathecae for the family); new species and records of Schizomus from Mexico; redescriptions of three species described by Remy (the types of which were not earlier available), and description of new species from Surinam; and new species of Schizomus from Panama and Costa Rica.

It has become apparent that a true understanding of the phylogeny and zooegography of the order cannot be had until the Old World fauna is better known. The female genitalia of only one Old World species has been described and the types of most species, including the type-species of the genera, remain to be restudied. A redescription of Trithyreus grassii (Thorell) based on a study of the holotype, and a description of the spermathecae of Megaschizomus mossambicus (Lawrence) is now in press and verifies the distinctness of the genus Trithyreus from Schizomus. A redescription of Schizomus crassicaudatus (O. P.-Cambridge), the type-species of Schizomus, is nearing completion. Other studies now in progress on the Old World fauna include a redescription of the types of Trithyreus claviger Hansen, description of several new species from Malaysia and Thailand, description of new species from Micronesia, and description of a new species from the Hawaiian Islands which appears to be closely related to the Micronesian fauna.

Also nearing completion is a checklist and bibliography of the order Schizomida which includes all published records, the museum location of all specimens (so far as it can be determined from the literature or through correspondence with curators), and a summary of information on habitat, behavior, etc.

The study of the Old World fauna, though only beginning, has already indicated that the order is more diverse than was previously believed and that probably it will be possible to recognize several genera among the species presently placed in Schizomus. The difficulty, as in most poorly-studied and little-collected groups, remains that of recognition of many of the older species described on the basis of females or immatures, and the types of which are lost or are in poor condition. Nevertheless, it is believed that the recent emphasis on soil fauna and the increased use of berlese and other collecting techniques will allow the accumulation of enought material to make possible an understanding of the phylogeny and zoogeography of the world schizomid fauna.

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James REDDELL
(Address above)

I plan to revise noncribellate orb-weavers of the neotropics, and am just finishing work on the first group of genera: Micrathena and Chaetacis. Next I will study Chrysometa (a metid), followed by "Araneus", Parawixia, Neosconella and related genera. My aim is to make it possible to determine species and to find out which genera are related.

The problems to be addressed in this revision are well illustrated by Micrathena species. Micrathena are common tropical, often colorful, diurnal orb-weavers found in woods. Of the 180 species of Micrathena listed in catalogs, only six were known from both females and males; 134 were known from females alone, 26 from males, and three from immatures. CHICKERING, in the 1960's, was able to match another four species. The problems for me to solve were the following: Whether or not it is possible to match males (lacking spines on the abdomen) with the very different looking females. Do juveniles have the same arrangement of spines as adults? Can one tell adults by the arrangement of spines, or must one examine genitalia, which had not been illustrated for most species cited in the literature? Are all the descriptions of new species distinct, or in part redescriptions of previously existing ones? Other questions concern the function of the spectacular spines on the abdomen: Are they a defense against predatory wasps, lizards or birds? And, finally, how does the genus fit into the evolutionary scheme of the Araneoidea? Are Micrathena really primitive Araneidae, as might be suggested by their inability to attack-wrap prey like other orb-weaving spiders?

After two and a half years of examining, illustrating, dissecting, measuring, mapping and labeling Micrathena, I think that I have answers to most of these questions. All will be on paper later this year (and published in 1985 or 1986). Once published, if the paper is any good, the answers to all the questions will appear obvious; only errors will stand out.

Thus, in early summer I can start on the next genus or group of genera, posing a different set of questions: Are there specialized (synapomorphic) characters that separate the metid genera from araneid and tetragnathid orb-weavers? Do the morphological differences in nephilid, metid, tetragnathid, and araneid orb-weavers match the behavioral differences found by W. EBERHARD, M. and B. ROBINSON and others?

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My research focuses on systematics of the spider family Uloboridae, but includes studies of the family's natural history, development, and behavior. I am currently completing a world-wide revision of the genus Miagrammopes and beginning studies of morphological changes that accompany reduction of the family's typical horizontal orb-web.

Miagrammopes is a pantropical genus, represented by approximately 50 species. Its members spin reduced webs consisting of either a single, horizontal capture thread or a nonsticky, horizontal resting thread from which one or several vertical or diagonal capture threads extend. While monitoring its web, a Miagrammopes tenses one or two of the capture threads with its first legs. When a prey item contacts a capture thread, the spider vigorously jerks the capture thread before anchoring and running down it to begin prey wrapping.

In addition to having the family's most reduced web form, Miagrammopes has the most highly modified cephalothorax. Its members are characterized by: 1. the absence of the four anterior eyes, 2. prominent posterior lateral eye tubercles, 3. unique lateral apodemes, 4. weakly sclerotized anterior lateral carapace margins, 5. anteriorly rather than ventrally directed chelicerae, and 6. a sternum that is divided between the second and third coxae by a weakly sclerotized transverse suture. A cladistic analysis of the genus shows that subsequent changes in such features as sternum width, eye curvature, length of thoracic region, posterior median eye separation, and lateral apodeme position play an important role in depicting intrageneric relationship. Within each of the eight species groups differences in male and female genitalia provide the most useful evidence for species identity.

Since coming to Virginia Tech, I have studied the life history, web production, and feeding of Hyptiotes. This temperate genus is the sister genus of Miagrammopes and shows similar, though much less extreme, carapace modifications. In the eastern United States and Canada it is represented only by Hyptiotes cavatus, whose vertical triangle-webs are commonly found in the lower branches of conifers. These webs consist of four radii between which about 14 cribellar strands extend. Like Miagrammopes, Hyptiotes tenses its web while waiting for prey and jerks the web when an insect contacts the web.

Within the last two years, insights from these systematic and natural history studies have combined to suggest that many characteristics of uloborids that spin reduced, vertical webs are modifications for effective use of these webs. I have begun to test corollaries of this hypothesis and have found that they support its premise and provide a fuller explanation of the family's diversity. This line of investigation began with a statistical analysis of 51 indices that describe the carapace shape and eye arrangement of 34 species representing each of the family's 18 genera. Indices that describe the anterior lateral carapace region were most important in explaining differences in carapace shape and most highly correlated with web type, thus supporting the hypothesis that carapace modification accompanies web reduction.

Two broad, nonexclusive hypotheses may explain this relationship. The first predicts that because reduced-web uloborids operate their snares by tugging on a single line rather than hanging beneath a hub as orb-weavers do, cephalothoracic changes should permit the legs to move more nearly parallel to the monitoring line. Additionally, leg article lengths and muscle insertions or mass should change to increase the force Hyptiotes can exert and the movement and speed of which Miagrammopes legs are capable. Because reduced-web uloborids are not protected by the hub of a web, but hang at or near the signal line's attachment to a twig, where they may be more vulnerable to predation, the second hypothesis predicts that their ventral visual capabilities should be well developed. As web reduction is accomplished by reduction or loss of the four anterior eyes (which my studies show provide most ventral vision in orb-weaver) these changes must be expressed in positional and optical changes in the four posterior eyes.

Although I have only begun to test these hypotheses, my studies show that both mechanical and visual changes accompany web reduction. Differences in cephalothorax musculature and in endosternite structure permit the first leg bases of reduced-web uloborids to move more nearly parallel to the midsaggital body plane. Comparison of the forces exerted by Hyptiotes cavatus and the orb-weaver Uloborus glomosus, both of which have similar web monitoring postures, shows that throughout development Hyptiotes cavatus, despite its smaller size, exerts significantly more force. With an undergraduate student I have compared the visual fields of a Miagrammopes and an orb-weaving uloborid and found that, despite loss of the anterior eyes, Miagrammopes has more extensive ventral vision. This is made possible by shifts in the visual axes of the eyes and by lens and retinal changes that expand the visual angles. I plan to continue these taxonomic, phylogenetic, and morphological studies of the Uloboridae in the hope that together they will provide a clearer picture of the family's diversity.

Brent OPELL
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Currently, I am involved in three interrelated studies associated with respiratory energetics and physiology in spiders. The studies are at various levels of completion and deal with predictions or questions raised in the previous report (ANDERSON and PRESTWICH, 1982) describing respiratory gas exchange in spiders.

The project nearest completion involved investigation (in collaboration with K. N. PRESTWICH) of respiratory gas exchange and energetics of sustained running in the spider Brachypelma smithi (Theraphosidae). These large (up to 35 grams) and inoffensive spiders can run for long enough times (up to 10 minutes at speeds of 5 cm/second) to obtain steady-state measurements of oxygen consumption. Our results indicate these animals achieve maximal rates of $O_2$ consumption about eight times resting values. This measured factorial scope for aerobic respiration agrees with that predicted based on morphological analysis of their book-lungs. Other data extracted from these experiments will allow us to partition aerobic and anaerobic contributions in meeting the energetic demands of maximum physical activity and also to determine whether tarantulas are facultative endotherms during activity.

One curious result of this study concerned the variable patterns of active ventilation of the book-lungs of our experimental animals. Although earlier reports suggested that spiders do not ventilate their lungs, several experimental studies over the last ten years indicate the opposite. While we observed that running spiders did ventilate, only about half of resting did so. We suggested, as have others, that lack of ventilation in resting spiders is adaptive in reducing water loss from the respiratory system. This water loss may be significant, as we found decreases in body temperature of 1°C in running, (and ventilating) spiders, due in part to evaporation of water. As such, I am planning a series of experiments to establish the relationship between rates of metabolism, rates of ventilation, and evaporative water loss from respiratory surfaces.

The third project is in the "data analysis" stage and is concerned with the relationship between nest size and body weight in the atypid spider, Sphodros abboti. COYLE and SHEAR (1981) showed that differences in web size are a function of the size of the individual spider, at least in part. Since these unusual webs are involved in prey detection, knowledge of the allometric relationship between certain web dimensions and body size might provide insight on how demands for energy are met in these animals. I plan to compare these relationships with that describing rates of metabolism versus body size previously published for this species.

## Literature Cited

Coyle, F. A. and W. A. Shear. 1981. Observations on the natural history of Sphodros abboti and Sphodros rufipes (Araneae, Atypidae), with evidence for a contact sex pheromone. J. Arachnol. 9:317-326.

Anderson, J. F. and K. N. Prestwich. 1982. Respiratory gas exchange in spiders. Physiol. Zool. 55:72-90.

John F. ANDERSON
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University of Florida
Gainesville, FL 32611

Perhaps I should first mention that I recently exited graduate school, and so have not yet accumulated a very long list of unfinished projects. (I'm working on it, though.) I'll also list my new address:

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Current Research.

1. Orb Weaver monophyly. A paper is in press evaluating the evidence for a sister-group relationship between Dinopoidea and Araneoidea. The answer seems to be that such a relationship does exist, based on both behavioral and morphological data. One implication is that the sheet and cob-webs of linyphiids and theridiids are derived with respect to araneids, not vice versa. Another implication is that the web form ancestral to the orb must be sought in the cribellate outgroups to the orb weavers, such as the dictynoid or amaurobioid families. Consequently, I would like to examine the spinning behavior and spinnerets of exemplar taxa to try to find the sister taxon to all orb weavers.

2. Homology of palpal sclerites in orb weavers. A further test of the above hypothesis involves independent character systems, such as genitalic morphology. The task is to establish the character states of the primitive orb weaver and araneoid palp, and to compare phylogenetic implications with those of behavior.

3. Orb weaving in Dinopis. If (1) is true, dinopids are orb weavers. A preliminary study of the building behavior of an unidentified dinopis species in Costa Rica disclosed the same behavioral synomorphies that defined orb weavers. An ongoing project is checking the behavior of other Dinopis species, as well as spinneret morphology.

4. Web building in Wendilgarda. This theridiosomatid genus spins an unusual web. Morphological characters suggest that the web evolved from something similar to that spun by Theridiosoma. I'm collecting observations trying to show how and where in the web building process changes occurred that allowed Wendilgarda to attach its web to moving water.

5. Generic revision of Theridiosomatidae. This work was essentially my Ph.D. thesis. I hope to get it into press soon. Future spinoffs from it will include quite a bit of taxonomy, specifically species-level revisions of each of the nine theridiosomatid genera known thus far. Four genera are new. One surprise is that by palp structure, the enigmatic araneoid genus Tecmessa is a theridiosomatid (the name Tecmessa is preoccupied and will have to be changed.) Another is that Maymena bruneti is also a theridiosomatid (various authors have pointed out this fact). M. bruneti will be included in a new genus of theridiosomatids, now known from caves in Brazil, Ecuador, Venezuela, Colombia, and Trinidad.

I'd like to conclude this note by pointing out the obvious--the Smithsonian (i.e., the National Museum of Natural History) is now back in the spider business, or, more generally, the arachnid and myriapod business. The USNM collections are not as large as those of the MCZ or the AMNH, but our research facilities are pretty good. I'm eager to receive donations of specimens (tax write-offs, anyone?), to assist collectors, to host researchers, or to sponsor suitable student projects through any of the various programs the Smithsonian offers.

Jonathan CODDINGTON
(address above)

I have spent the last 15 years obtaining the basic understanding of spider population biology and behavior requisite to applying this predator in the control of insect pests. My initial work dealt with the constraints the physical environment places on spider habitat association and on the timing of their foraging activities. This work was followed by investigation of a territorial system I feel is characteristic to most spider species. Territorial behavior insures that individual spiders will survive to reproduce, but because it is fixed in many habitats, limits spider population sizes to numbers that could be supported during bad times. This system has important consequences to the functioning of spiders as predators.

The territorial work has led to two interesting lines of investigation aside from the long term goal. One of these is the application of game theory constructs (developed to explain human behavior in conflict situations) to an animal system in which it can be more easily investigated and interpreted. Because sites assuring reproductive success are sometimes in limited supply, spider competition for sites varies with the physical environment a given population inhabits. I have found that the funnel web spider Agelenopsis aperta both adjusts its level of fighting and the degree to which it risks injury according to its probability of winning a given territorial dispute (how heavy it is relative to its opponent) and to the value of the territory being disputed (how much food it is expected to provide). I am now investigating the extent to which the discrimination of habitat quality, territory size and fighting behavior are under genetic versus experiential control.

The fact that territory size was found to be adjusted to levels of available prey led me to investigate spider systems in which cooperative rather than competitive behavior is exhibited. The more "social" spiders are limited in their distribution to tropical areas where high numbers of insects and favorable temperatures and humidities are experienced throughout the year. I am working on one of these species, Agelena consociata, in tropical rain habitats in Gabon, West Africa. I am especially interested in learning whether simple cost-benefit payoffs to individual spiders favors cooperative behavior or whether individuals have to be genetically related for cooperation to have developed. This is a subject of much current interest in animal behavior and evolutionary biology.

Largely through extensive study of Agelenopsis aperta from the southwestern US, but with some additional insight gained from work with spider communities in east Tennessee, I now feel I have enough of an understanding of spider behavior and ecology to attempt to use this generalist feeder in the biological control of insect pests in agricultural systems. This past summer I completed a preliminary study in a vegetable garden system where spider numbers were augmented through habitat manipulation (the introduction of mulch and alternation of vegetable rows with rows of native flowering plants). The results of the manipulations were dramatic with as much as an order of magnitude less plant damage and fewer pests occurring in the treated plots than in the control plots lacking these features. I now wish to pursue this work testing its applicability to a cash crop system.

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Knoxville, TN 37916

The past year has been a busy one at AMNH. We were fortunate in being able to host Dr. Robert J. RAVEN of the Queensland Museum, Brisbane, on the first year of his two-year CSIRO (Australia) postdoctoral fellowship. Robert undertook an extremely ambitious project, revising the generic and higher classification of the world's mygalomorphs, based primarily on examinations of the type specimens of type species of described genera, but also utilizing large collections here in New York and elsewhere. When completed, his work will radically alter the familial positions of many taxa, particularly those of the classical Ctenizidae and related groups currently considered pycnothelids and diplurids. The second year of Robert's fellowship is being spent at the Australian National Insect Collection in Canberra.

My own work has proceeded in several directions. Ray FORSTER of the Otago Museum, Dunedin, New Zealand, and I completed our rview of the archaeid spiders and their relatives, arguing for a much-expanded conception of the superfamily Palpimanoidea. We're currently at work on another austral group, containing South American, Australian, and New Zealand taxa previously misplaced in the Dysderidae and Oonopidae; the project is proving to be much larger than expected (the described American fauna, for example, will grow from three to 32 species, almost all endemic to Chile).

Also completed this year, in collaboration with Terry SEDGWICK and based primarily on new specimens recently collected by him in Souteast Asia, was a revision of Liphistius, in which the limits of the genus vis-a-vis Heptathela are somewhat altered and nine new species are described. In the Gnaphosidae, a small paper was finished up on a new South American genus, the previously described members of which had been scattered among three genera, to none of which they are even remotely related. With the assistance of John MURPHY of Hampton, England, a mop-up paper on zelotines is in progress; it will include several members of Old World genera that have been introduced into North and South America, as well as other parts of the world, and that therefore have been redescribed frequently (the synonymy for one of these species fills five pages and is still probably incomplete!). A revision of the North American Micaria, comprising about 45 species, is about half-finished and I hope to get back to it by summer, so that work can then begin with Charles DONDALE and Jim REDNER of the Biosystematics Research Institute, Ottawa, on a handbook of Canadian gnaphosids that will

A highlight this year will be a month shortly to be spent in France and England, examining classic collections in Paris and London as well as Madasgascar spiders in the lab of Dr. R. LEGENDRE. Also welcome news was funding by the National Science Foundation for two further collecting trips to Chile; Oscar FRANCKE of Texas Tech and I hope to go down next January for a couple months of spider and scorpion hunting that should help us develop some more detailed ideas about the biogeography of the fascinating Chilean arachnofauna. One group that I'll focus on is the Metaltellinae, currently placed in the Amaurobiidae, another in the growing list of taxa now known to have speciated extensively in Chile. Other taxa to be looked at include the Thaididae, Diguetidae, Hahniidae, and Anapidae. Other field work may include a trip this fall to Cerro La Neblina, an isolated mountain in extreme southern Venezuela.

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## SUMMER COURSE ON SPIDERS

Repeated requests to this newsletter for information on summer courses in spider biology can finally be answered. We have learned that our colleague Allen BRADY will be teaching a Sleeping Bear Dunes Summer Seminar entitled "Spiders and Their Relatives," this summer at the Leelanau Center for Education in Glen Arbor, Michigan. The seminar will run from July 9th to 13th, and is described as follows in the announcement:

"The biology of selected groups of spiders and their relatives will be studied with emphasis on the natural history of spiders. The ecology, systematics, and behavior of families of Michigan spiders will be stressed. Field and laboratory activities will include the collection and identification of local species.

"Dr. Allen BRADY has taught invertebrate zoology and evolution at Hope College for 17 years. He has offered courses in the biology of Arachnids (spiders and their relatives) at Albion College and the University of Florida. This arachnological training began at the University of Houston under J. C. BEQUAERT and was continued at Harvard University under H. W. LEVI. Research investigations have focused on the systematics, ecology, and behavior of spiders."

For additional information or registration, please write The Leelanau Experience, Glen Arbor MI 49636, or call (616)334-3072.

## GRANTS-IN-AID
## FROM THE
## EXLINE-FRIZZELL FUND FOR ARACHNOLOGICAL RESEARCH

Grants-in-Aid for research on Arachnida (excluding Acarina) and Myriapoda are available to students and researchers through the Exline-Frizzell Fund for Arachnological Research of the California Academy of Sciences. Applications, which will be evaluated by the American Arachnological Society and the Department of Entomology of the California Academy of Sciences, may be submitted to the latter. Awards will be made upon approval of the Academy's Director, shortly after March 1 and September 1 of each year. Grants will normally not exceed $750. The grants may be used for fieldwork, museum research (including travel), expendable supplies, and publication costs (including artwork).

Applications can be obtained through: Department of Entomology, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118-9961.

## RESEARCH HELP NEEDED

We have on hand the following requests for literature, specimens, and research help, and apologize for any inconvenience that might have been caused by delay in publication.

"I am gradually trying to gather a set of Journal of Arachnology. I find the society is sold out of vol. 1, #1; vol. 2, #1; vol. 3, #1. Do you know any possibilities who might have these numbers for sale? I'll pay up to $8 per copy.

Jerry G. WALLS
P. O. Box 42
Hightstown, NJ 08520"

"For the preparations of a comprehensive study and book about SCORPIONS, I am in urgent demand of

- living specimens (2-3 males and females)
- preserved specimens
- literature and other documentary material of desirably all genera of Scorpions inhabiting the USA/Mexico. Furthermore, about 30 adult Latrodectus ssp. (Black widow spiders), living, are urgently requested for scientific study.

Air-mailed offers and cooperative proposals to:

Matt E. BRAUNWALDER
Finsterrütistrasse 5
CH-8134 Adliswil/Switzerland"

EDITOR'S NOTE: Americans inclined to answer this request should thoroughly check U. S. Postal regulations, which prohibit the sending of venomous animals of several kinds through the mails.

"A manuscript is being prepared on the incidence of spider parasitism by nematode worms, specifically members of the family Mermithidae. This is meant to be a world-wide study going back to 1796. If anyone has records or specimens of long, whitish worms that attacked spiders, please send them or information of their occurrence to Dr. George O. POINAR, Jr., Division of Entomology and Parasitology, University of California, Berkeley, CA 94720. Please include name of spider host (including author), locality, date of collection and collector, if known. The results of this survey, along with photographs and a discussion of spider parasitism by mermithid nematodes are planned for publication in "The Journal of Arachnology."

## MISCELLANY: GAZETTEERS, KEYS, ARANEISM

Herb LEVI's notes on Gazetteers in our last issue provoked good response. Herb wants to add the following title to the list he provided:

Sealock, R. B. et al. 1982. Bibliography of Place Name Literature, U. S. and Canada. 3rd edition. Amer. Library Assoc., Chicago.

These comments from Eric ZURCHER:

"I'd like to submit a brief addendum to Herb Levi's discussion on gazetteers. Locality name data for virtually the entire United States is now available from the Geographic Names Information Service of the U. S. Geological Survey. This data set is ultimately to be used in the production of the National Gazetteer, to be released as USGSProfessional Paper 1200. Although only the data for NewJersey has been published in final form (as Levi mentions), the interim data set is already available.

"The data set consists of an alphabetized listing of locality names, and includes county, elevation (if available), latitude, longitude, and the names of the 7.5 minute quadrangles on which the feature appears. This information can be obtained on a state-by-state basis in the form of either spiral-bound volumes, computer printout, microfiche, or magnetic tape. So if anyone is in need of locality name information for the U. S., and they don't want to wait for the National Gazetteer to be published in final form, they can sent their requests to:

National Cartographic Information Center
U. S. Geological Survey
507 National Center
Reston, Virginia 22902
Phone: (703)-860-6045."

Also, Bill RAPP (430 Ivy Avenue, Crete NE 68333) sent in a long list of publications very useful in locating geographical names. The list is too long to reprint here, but we will wager that if you sent Bill a SASE and a dollar to cover cost of copying, he will send you his list.

Besides the additional gazetteer title, Herb included this offer in his letter:

"I have available xeroxed keys to North American Araneidae genera (2nd edit) - a draft; the draft of an illustrated key to neotropical theridiid genera (1984); and a very rough illustrated key to neotropical araneid genera. The last is specifically to be used to encourage colleagues to sort their collections to permit me to borrow them by genus for my forthcoming neotropical Araneidae revisions. Micrathena is almost completed."

Eric ZURCHER also wanted a query inserted in the newsletter:

"Are you aware of any documented reports of araneism being caused by members of the Thomisidae? On several occasions, our extension entomologist has brought spiders to me for identification that have been implicated in biting people. Included have been several species of Xysticus and one of Coriarachne. I suspect in most of these cases, the spider has been accused unfairly, often because laymen suspect them to be brown recluses. Still, it does seem possible that evenomation by some of our large Xysticus could occur. Do you have any thoughts on the matter?"

## PORTABLE FLASH SYSTEMS FOR 35mm FIELD CLOSEUP PHOTOGRAPHY

by

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There are many options to consider when devising a system for the field closeup photography of arthropods. These options include features of the film, camera, lenses, bellows or other extension devices; type, power and number of flash units, and ways of mounting the flash units and other components into an integrated system. In the following discussion, some thoughts are presented regarding four commonly used closeup systems for the field photography of arthropods. These systems are useful in the lab as well.

### System Number One
(Camera and single, hand-held flash)

Equipment: Camera and lens, flash, flash cord; extension tubes or lightweight bellows if a macro lens is not used.

A very simple, useful and versatile system consists of only the camera and lens and a small flash unit connected to the camera by a flash synchronization cord. 35mm is the most practical camera format because of size and weight considerations; small, hand-size flash units are easily carried and positioned. The camera is held in the right hand and the flash is held in the left. The system allows high mobility because of its small size and weight, and can be used when speed is required because tripod and gunstock supports are not used. Since the flash unit is not fixed to the camera, the lighting angle can be varied at a moment's notice. For example, since it is often desirable to have light coming toward the head end of an arthropod, one can immediately reorient the flash unit as the subject changes position. If desired, attention can be directed to some other portion of the animal or scene by aiming the flash at that area.

The flash unit, as with the other systems to be described, has a short flash duration for freezing action and can be used at a short flash-subject distance to allow appropriate depth of field and the use of slow films for quality images. An additional advantage of using the flash close to the subject is the softer light which results from the relatively larger light source. If the flash unit is moved further away, the harsh, directional light from a single flash may require diffusion by one of the commercially available diffusers or by lens tissue, white handkerchief or some type of translucent plastic. The flash should be held above the lens axis because light coming from below doesn't look normal. If desirable, a color correcting filter (CC20Y is commonly used) can be placed over the flash head to warm the (usually) somewhat cold light of an electronic flash. CC filters are not necessary for bulb flash units since blue flash bulbs are of the correct color temperature for daylight color film.

A 50 to 100 or 150 mm macro lens is useful, or a normal lens or short telephoto can be used with extension tubes or light-weight bellows. Longer and heavier lenses such as some telephotos or heavy bellows become unwieldy for this hand-held operation. The system is easy to learn, and skillful placement of a single flash unit will suffice under nearly all conditions. Exposure is determined by Guide Number (GN) and lens extension and is easily calculated, or is performed automatically in cameras with through-the-lens (TTL) flash capability. Bulb flash can be useful since one can obtain a change in GN by changing shutter speed; however, the GN can be changed in variable-powered electronic flash units.

## System Number Two
(Camera, extension device and flash unit)

Equipment: Camera and lens, bellows or extension tubes, flash cord, flash unit.

The key to this system is a flash unit mounted on the front of the bellows, lens, or extension tube. As an extension device, bellows are more convenient for this system since they allow a continuous magnification range without having to change tubes. Exposure calculation is simplified since as the bellows is extended for greater magnification, the increased amount of light required is automatically provided as the flash moves with the lens and bellows, closer to the subject. The predetermined exposure remains approximately constant in the close-up magnification ranges commonly used in field photography of arthropods, 1:5(one-fifth life size) to 1:1 (life size). Therefore, once the correct aperture setting is determined for any magnification in this range, exposure calculations are not necessary. (It may be necessary, though, to adjust 1/2 to one full stop for a particularly bright or dark subject). The system is compact, easy to handle, and fast. A flash unit can be aimed from the top or side of the bellows or lens depending on the desired modeling effect; two flash units can be used for further modeling or fill effects. Flash units may be mounted to the bellows or lens by accessory shoes, with the end of the bellows (front standard) being a preferable location for ease of installation and less chance of lens damage during installation and use.

## System Number Three
(Camera and ringflash)

Equipment: Camera and lens, ringflash; extension tubes or bellows can be used.

The ringflash consists of a circular flash tube constructed to fit around the lens; the tube assembly usually screws into the lens filter ring. Because the light is near-axial and comes from multiple directions, shadowless illumination results. Some workers object to the aesthetic blandness of shadowless illumination. However, ring lights are excellent sources for displaying maximum information in three-dimensional subjects. For scientific photography, maximum information is usually more important than aesthetic considerations, but some modeling (shadow effects) can be introduced by masking portions of the flash tube to give the light a directional nature.

Ringlights are specialized units used mainly in closeup photography. They are therefore not capable of double duty in arthropod photography and home or family recreational photography whereas the small, hand-size electronic flahses used with the other systems are. The power output usually restricts ringflash units to close operating distances and to lenses of approximately 50-200 mm focal length. If some ringflashes are used too close to a subject, for example, a flash on a 50 mm macro lens focused to 1/2 life size, a dark central area may result. If a 200 mm lens is used for its longer working distance and perspective, common units will require an aperture of f/8 for a high resolution, ASA 25 film. This may not provide enough depth of field for some subjects so a faster film of lower resolution will be necessary to attain a smaller aperture. A 100-500 mm lens is a good "happy medium" focal length for use with a ringflash, but this varies somewhat with the power of the unit.

Both manual and automatic ringflash units are commercially available. The ringflash is very easy to use manually by the Guide Number system. The required aperture remains approximately constant for a particular lens-film combination over the magnification range of 1:5 to 1:1 because as the lens is extended, the increased amount of light required is provided as the flash moves closer to the subject.

Because they fit the camera and lens so closely and compactly, ringflash units handle quite well in the field, especially when stalking arthropods in rough or wooded terrain. However, most units require a battery pack which must be clipped to a belt or carried on a shoulder strap. The near-axial lighting provides good illumination in recesses and cavities.

## System Number Four
(Camera and two or more flash units)

Equipment: Camera and lens, two or three flash units, camera and flash platform, flash cords and multi-socket adapters (or slaves), flash brackets, extension devices such as bellows or extension tubes (if a macro lens isn't used).

For maximum versatility in a portable flash system, two or three small flash units can be mounted on a camera/flash platform. Flash units may be connected to the camera by flash synchronization cords and a multi-socket adapter, or slave units may be used. Flexible or movable flash brackets allow placement of the flash units for front, side, rim, or back lighting; lighting ratios are easily altered. The system can be triggered by a cable release grip or a gunstock with a cable release.

The system is heavier than the others described and can be somewhat ungainly when bellows and a long telephoto lens are used with three flash units on a gunstock. However, the versatility of lighting effects make the system very attractive. Exposure calculations involving three flash units initially may seem complex with cameras not having TTL autoflash capability, but in reality, exposure calculation is simple.

## MIKE ROBINSON APPOINTED NATIONAL ZOO DIRECTOR

Dr. Michael H. ROBINSON, deputy director of the Smithsonian Tropical Research Institute, has been appointed director of the National Zoological Park, Smithsonian Secretary S. Dillon RIPLEY announced January 31.

ROBINSON, a member of the Smithsonian staff for the past 18 years, is a noted animal behaviorist and tropical biologist. He will assume his new position in several months.

In announcing the apointment, RIPLEY said: "I am particularly delighted that such an eminent animal behaviorist has agreed to accept this appointment. Michael ROBINSON is a noted conservationist and has a long record of work in biological research in the tropics, a region where a serious threat to animal and plant life is posed."

ROBINSON, 55, will succeed Dr. Theodore H. REED, who stepped down as director in 1983 after 28 years of service at the zoo. At that time, a search committee for a successor was appointed with Dr. David CHALLINOR, Smithsonian assistant secretary for science, as its chairman.

"It is a tremendous honor and responsibility to be appointed director of the National Zoological Park," ROBINSON said. "The National Zoo is not just an isolated zoological park. It is unique in that it is part of a varied and complex intellectual institution --the Smithsonian. Moreover, the Smithsonian's National Museum of Natural History and the Smithsonian Tropical Research Institute are also places concerned with conservation and the study of animals. We hope to work with both organizations to continue and expand the National Zoo's work in conservation. In addition, we plan to continue and expand the zoo's excellent research in the fields of animal physiology, pathology and population genetics.

"I am also deeply aware of the National Zoo as a place where millions of visitors come to be entertained and educated. I've been a zoo-goer and enthusiastic about visiting zoos all my life. I've always believed that zoos should be places where people can see exciting and beautiful animals doing exciting and beautiful animals doing exciting and beautiful things. The National Zoo is just such a place. As an animal behaviorist, I believe that zoos are important places to carry out animal behavior studies. The knowledge gained from these studies can make zoos even more exciting places for the public to visit."

ROBINSON, born in Preston, Lancashire, England, in 1929, studied for his doctorate at Oxford University under the supervision of animal behaviorist Niko TINBERGEN, a Nobel Prize winner in medicine.

ROBINSON received a certificate in education from the University of Liverpool in 1953 and went on to the University of Wales, where he earned a bachelor of science degree in zoology, summa cum laude, in 1963. He was awarded a doctorate by Oxford in 1966.

Before joining the Smithsonian, ROBINSON served as a science teacher for seven years in secondary schools in the United Kingdom. In 1965, he became the first predoctoral scholar in the history of the Smithsonian Tropical Research Institute.

ROBINSON, who is featured in "Crossing the Distance," the second program of the "Smithsonian World" television series, broadcast on public television February 15, joined the staff of the Smithsonian in 1966 as a biologist at STRI. He was appointed deputy director of the Tropical Research Institute in 1980 and served for one year as acting director.

ROBINSON has served as a visiting lecturer at the University of Pennsylvania, reader in biology at the New University of Ulster (Northern Ireland) and adjunct professor of the University of Miami (Coral Gables). He is a fellow of the Linnean Society of London, a scientific fellow of the Zoological Society of London, a fellow of the Royal Entomological Society of London and a fellow of the Institute of Biology. He is a director of the American Arachnological Society and a member of the Society for the Study of Animal Behavior and other scientific bodies.

His major scientific interests include predator-prey interactions, particularly predatory behavior and anti-predator adaptations; evolution of complex adaptations, tropical biology and freshwater biology. He has carried out research in 18 countries in addition to Panama, ranging from Kenya and Ghana to Sri Lanka, Assam, Papua New Guinea, Brunei and Venezuela.

In his current research, ROBINSON is working on the evolution of intelligence and higher learning capacities in vertebrates, using free-living tropical birds in open-field learning experiments. He is also working on courtship and mating behavior in freshwater fish. He is the author of numerous scientific papers.

## AN EXHIBIT OF ABBOT PAINTINGS

Any American Arachnologist worth his salt knows the name of John ABBOT of Georgia, a talented, though eccentric, artist and collector of insects and spiders who lived and worked in the American south in the early nineteenth century (see CHAMBERLIN and IVIE's "Spiders of Georgia" for details). Classics Prof. Lawrence S. THOMPSON published this article about ABBOT's art in the Richmond News-Leader last month:

"An impressive collection of 103 paintings of the Insects of Georgia (and common to the whole Southeast) by John Abbot (1751-1840) has been excavated from the archives of the Alexander Turnbull Library of Wellington, New Zealand, and is now being published in annual fascicles of six to ten plates.

"The paintings were taken to New Zealand by the noted British naturalist William Swainson (1789-1855) and came to the Turnbull in 1927. Swainson's death prevented him from bringing out a companion volume to Sir James Edward Smith's much sought-after The Rarer Lepidopterous Insects of Georgia (1729) with 104 Abbot paintings.

"The first group contains paintings of the Tiger and Giant Swallow Tails, the Brown Skipper, Hairstreaks, and the Great Meadow Brown, all familiar to collectors of butterflies all over eastern North America. Equally attractive are the plants with which the insects are portrayed.

"One caveat for would-be Abbot collectors: He employed assistants in his atelier who copied his paintings, sometimes touched up by the master. So don't assume that the butterfly portrait you picked up at the Chitterling Switch Flea Market is a 'genuine Abbot.'"

Jerry WALLS sent in this interesting item, clipped from "Linn's Stamp News:"

Research into the Falkland Islands Insects and Spiders definitive set, scheduled for release Jan. 1, has uncovered some interesting new facts about one of the stamp subjects.

When the theme for the definitive set was first selected in 1980, Ian STRANGE, an experienced Falkland Islands stamp designer, was asked to prepare the artwork.

In his notes accompanying the final artwork, STRANGE observed that species of insects and spiders native to the Falkland Islands are not generally very colorful.

He decided, therefore, to emphasize the existing color as much as possible, adding to each stamp design a plant that was related to the subject of the stamp.

Strange also produced his drawings from mounted museum specimens, but copied his colors from live subjects.

Strange's comments accompanying the final artwork included the notation:

'The subject on the 1p stamp design is known to be of the genus Araneus; the specific name is not yet known.' An intriguing mystery had begun.

When the final artwork was forwarded to the museum experts as a guarantee toward accuracy, a notation by one of the entomologists revealed that the mysterious spider on the 1p value was still evading identification.

'Dr. USHER was able to confirm that it belonged to the genus Araneus but was unable to say which species...At first it was thought we might have something new, but as time goes on and more specimens are looked at, there is a feeling that this red-brown spider might be another form of the green spider illustrated on the 6p stamp design!'

As it turned out, this 'feeling' was partially correct; the entomologists later observed that the "red" spider illustrated on the 1p stamp was simply a younger stage that eventually molts and becomes the adult green spider depicted on the 6p value. This was a new discovery.

As a result of this new information, some last minute graphic changes were incorporated onto the 1p value.

The specific name, cinnabarinus, was added after the word Araneus at the top of the stamp. In addition, the words Garden Spider were removed and replaced by Green Spider (juvenile).

This set of stamps includes the following spider designs:

Green spider (Araneus cinnabarinus) (juvenile form) against a background of the fern Blechnum magellanicum, 1p;

Green spider (Araneus cinnabarinus) among boxwood (Hebe elleptica), 6p;

Beauchene spider (Emmonomma beauchenicum) with Tillaea moschata (stonecrop), ~~£1~~;

The stamps were printed in lithography by The House of Questa Ltd.

Additional information can be obtained from Crown Agents Philatelic Corp., 115 Main Road, Montville, N. J. 07045.

## SUGGESTED CHANGES IN AAS CONSTITUTION AND BYLAWS

In answer to various requests from the Membership, the Executive Committee proposes a number of amendments to the Society's Constitution and By-laws. These amendments are underlined in the text included in full below. We will discuss the proposed changes at the business meeting in June in New Orleans and then will send out a formal mail ballot in the next issue of the Newsletter.

Susan Riechert
President

PROPOSED REVISIONS ARE UNDERLINED

### CONSTITUTION

ARTICLE I Name

Section 1: The name of the organization shall be: The American Arachnological Society Corporation.

Section 2: Similar groups or organizations which are willing to abide by and uphold the Constitution and Bylaws of the Society may be incorporated as branches of the organization.

ARTICLE II Purposes and Objectives

Section 1: To promote the study of the Arachnida.

Section 2: To achieve closer cooperation and understanding between amateur and professional arachnologists.

Section 3: To publish the Journal of Arachnology.

Section 4: The general purposes and powers are to have and exercise all rights and powers conferred on nonprofit corporations under the laws of California, including the power to contract, rent, buy or sell personal or real property, provided, however, that this corporation shall not, except to an insubstantial degree, engage in any activities or exercise any powers that are not in furtherance of the primary purposes of this corporation.*

Section 5: No substantial part of the activities of this corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

ARTICLE III Membership

All persons interested in the objectives of the Society shall be elgible for membership.

ARTICLE IV Meetings

There shall be an annual meeting open to all members.

ARTICLE V Officers

Section 1: The elective offices shall consist of President, President-Elect, Secretary, Treasurer and a three member Board of Directors.

Section 2. The officers shall be elected by a majority of votes cast. In case of no majority (a tie), the Executive Committee will choose between (among) the tied nominees.

ARTICLE VI Amending the Constitution

Section 1: The Constitution or any part thereof may be amended, suspended or repealed by a two-thirds majority of those voting in a mail ballot, provided there is a two months notice of the proposed change.

Section 2: Any member in good standing may propose, in writing, an amendment to the Constitution to the Executive Committee. Such a proposal, if approved by a majority of the Executive Committee, shall be submitted with a recommendation to the members. A proposed change to the Constitution not recommended by the Executive Committee must be submitted to the members of the Society if five or more members re-submit it.

ARTICLE VII Non-Profit purposes

This corporation is organized pursuant to the General Non-Profit Corporation Law of the State of California and does not contemplate pecuniary gain or profit to the members thereof and it is organized for non-profit purposes.

ARTICLE VIII Principal office

The county in the State of California where the principal office for the transaction of activities of this corporation is Los Angeles County.

ARTICLE IX Dissolution

The property of this corporation is irrevocably dedicated to arachnological

purposes and no part of the net income or assets of this organization shall ever inure to the benefit of any director, officer or member thereof or to the benefit of any private individual. Upon the dissolution or winding up of the corporation, its assets remaining after payment of, all depts and liabilities of this corporation shall be distributed to a non-profit fund, foundation or corporation which is organized and operated exclusively for arachnological purposes and which has established its tax exempt status under Section 501(c)(3) of the Internal Revenue Code. The non-profit fund, foundation or corporation which is organized and operated exclusively for arachnological purposes shall be named at the time of dissolution by the Executive Committee or vote of membership. If this corporation holds any assets in trust, or corporation is formed for charitable purposes, such assets shall be disposed of in such manner as may be directed by decree of the superior court of the county in which the corporation has its principal office, upon petition therefore by the Attorney General or by a person concerned in the liquidation, in a preceeding to which the Attorney General is a party. The purposes contained in this paragraph are limited to those meeting the requirements for welfare exemption under Section 214 of the Revenue and Taxation Code.

BY-LAWS

ARTICLE I Membership

Section 1: Membership shall be open to all persons who make formal application and pay the prescribed dues, and who are willing to abide and uphold the Constitution and By-laws of the Society.

Section 2: Institutions may not become members, but may subscribe to publications.

Section 3: Membership dues shall be established by recommendation of the Executive Committee at the annual meeting and shall be ratified by a majority vote of the members attending the meeting. Dues shall be paid upon receipt of an annual bill.

Section 4: All members in good standing have the right to vote.

Section 5: Any members in good standing is elgible to hold office.

Section 6: A member whose dues have not been paid within a reasonable period of time will forfeit the priviledges of membership. Such members may be reinstated upon payment of delinquent dues.

Section 7: The services and priviledges of membership shall include the following:

1. Subscriptions to all publications.
2. Vote in accordance with the By-laws
3. Participation in all activities and functions of the Society

Section 8: A class of Honorary Membership shall be established. An individual may be elected at the annual business meeting by the proposal of the Executive Committee. The number of Honorary Members is not to exceed 5% of the total membership. A list of these Honorary Members is to be published annually in the newsletter of the Society.

ARTICLE II Officers

Section 1: The elective offices shall concist of: President, President-Elect, Secretary, Treasurer, and a three member Board of Directors.

Section 2: The officers and Board of Directors of the Society shall serve as the Executive Committee. Fifty percent of the Executive Committee represents a quorum.

Section 3: The officers and Board of Directors of the Society shall be elected by a majority of votes cast in a mail ballot.

Section 4: Officers and Directors shall serve for two years, or until their successors are elected. Beginning in 1977 and every other year thereafter, the incumbent President-Elect shall assume the presidency, and the incumbent President shall continue on the Executive Committee as one of the Directors. A new President-Elect , the Treasurer, and one Director shall also be elected in these, the odd-numbered years. On the alternate, even-numbered years, beginning in 1978, the Secretary and one Director shall be elected.

Section 5: An Officer or Board of Directors member may be renominated but may not serve for more than two consecutive terms in the same office.

Section 6: The President shall preside at business meetings of the Society and Executive Committee. He shall appoint all committee chairpersons as the need arises. The Executive Committee shall appoint all committees.

Section 7: The President-Elect shall assume the duties of the President in His absence at business meetings, and shall become President in the event of death, resignation or disability of the President. In the event of the absence of both President and President-Elect at a business meeting, any member of the Society duly chosen by the members present ought to preside.

Section 8: The Secretary, or his delegate shall keep minutes of the proceedings of all Society business meetings, conduct official correspondence and maintain an on-going record of Society affairs.

Section 9: The Treasurer shall keep the financial records, accept monies, issue bills, pay bills and maintain the bank account. The account shall be subject to annual audit by a committee appointed by the Executive Committee. An annual financial statement shall be published in the newsletter of the Society.

Section 9a: The Membership Secretary shall be appointed by the Executive Committee, and shall serve until replaced. The Membership Secretary shall keep membership records, issue dues renewal notices, and accept dues and transmit them to the Treasurer for deposit. Starting in 1985 the complete membership of the Society shall be published in the newsletter of the Society every 5 years.

Section 10: Publication policy shall be the responsibility of the Executive Committee, which shall also appoint the Editor of the Journal. An Editorial Board shall be appointed by the Editor of the Journal under consultation with the Executive Committee. The purpose of the Editorial Board is to assist the Editor in the review process.

Section 11: Election of Officers and Board of Directors shall be held as provided for in Art. II, Sec. 4 of these By-Laws by a mail-in ballot. The ballots shall be counted by three members appointed by the President. The nominees for each office shall be selected either by a nominating committee or may be nominated by any member in good standing. Write-ins on ballots will be permitted. Nominees must state, in writing, to the Nominating Committee their willingness to serve if elected. Newly elected officers shall take office on the first day of September of the year in which they are elected.

Section 12: Procedural matters shall be passed by a default system. If less than 10% of the membership send negative remarks to the Secretary within a month of mailing, the motion will pass. If 10% or more reply with negative comments, a general mail vote will be taken, with a majority of votes cast determining the issue.

ARTICLE III Meetings

Section 1: There shall be an annual general meeting of the Society open to all members. The date, time and place to be determined by the host(s) and coordinated by the President-Elect.**

Section 2. The membership shall be informed of the date, time and place of the annual general meeting at least three months prior to the meeting.

Section 3: Special meetings of the Executive Committee may be called by the President.

Section 4: An annual business meeting open to all members will be held in conjunction with the general meeting at a time to be designated by the President.

Section 5. Additional meetings may be called by the Executive Committee or by the request of twenty or more members.

ARTICLE IV Dues

Section 2: Annual dues for regular members shall be an amount fixed by the Executive Committee and duly announced to the membership.

Section 3: Institutional subscriptions shall be an amount fixed by the Executive Committee and duly announced to the membership. Journal subscriptions may be exchanged with other professional societies that publish a journal.

Section 4: Student membership shall be an amount fixed by the Executive Committee and duly announced to the membership.

Section 5: Honorary Membership will be gratis and must be bestowed by the vote of the Executive Committee.

Section 6: Associate Membership for low income workers or for countries where it is not possible to send money will be gratis and must be bestowed by the vote of the Executive Committee. Publication charges for papers submitted by such persons to the Journal will be settled in like manner.

Section 7: ~~Records relating to the Society funds~~ The annual financial statement prepared by the Treasurer shall be published in the newsletter of the Society, and records relating to the Society funds shall be open to inspection to any member at any time.

ARTICLE V Amending the By-Laws

By-laws may be adopted, amended, suspended or repealed by a two-thirds majority of those voting in a mail ballot, provided there is two months notice of the proposed change.

ARTICLE VI Parliamentary Authority

If not contrary to the Constitution or By-Laws, procedures to be followed in business meetings of the Society shall be those established in "Roberts Rules of Order Revised," seventy-fifth or later editions.

*According to Norman Horner:"We are and will probably always be a nonprofit organization in the State of California. When the treasury moved to Texas, I contacted the Texas Secretary of State's office and their suggestion was to leave it in California, because the officers are in different parts of the US." If one has ever attempted to file the necessary papers to obtain tax exempt status, he would understand our desire to let this article stand as is.

**With one dissenting vote, the Executive Committee proposes to eliminate the eastern and western regional meetings in favor of a single annual meeting that will be held in alternating years in more easterly and westerly locations respectively.

## EDITOR'S FAREWELL

This issue of AMERICAN ARACHNOLOGY is the last I will be editing. The need to devote more time to teaching, research, administration and family dictates that some activities be curtailed--and this is it.

It has been fun putting together eleven issues of the newsletter (even though it sometimes hasn't had much news in it!), and an education seeing it through the composition process, printing, and mailing. The only question I have had about the whole thing is the extent of the readership. But perhaps the lack of "feedback" (ugly word) means that pretty much everyone has been satisfied. And there has been a definite increase in items submitted; personally I would like to see even more things like Herb LEVI's notes on gazetteers and Alan CROKER's series on photography (How about it, Steve SKINNER--why not write something on the basics of making research videos?).

I suspect a new secretary (and therefore newsletter editor) will be selected at the New Orleans meeting. Be thinking about volunteering for the job, won't you?

Finally, I'd like to thank the people here at Hampden-Sydney who have helped to get the newsletter out: Jean HUDSON for typing and proofreading, Beth CARTER for labelling and sorting; especially Richard McCLINTOCK, our director of publications, for seeing that each issue is properly composed and set. The newsletter has been printed since 1978 by the Farmville Herald. The paperwork associated with third-class mailing has been done by Hampden-Sydney's Development Office and by Marianne WELLS, Hampden-Sydney postmistress.

**American Arachnology**
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