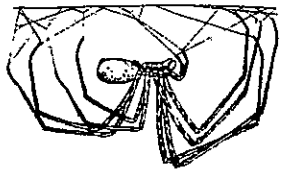
AMERICAN ARACHNOLOGY

THE NEWSLETTER OF THE AMERICAN ARACHNOLOGICAL SOCIETY

No. 32 October 1985



B. J. KASTON 1906-1985

When Benjamin Julian Kaston died in his seventy-ninth year in Santa Ana, California this August, the arachnological community lost one of its most respected members. Born on July 2, 1906 in New York City, Kaston recieved his undergraduate education at North Carolina State University and his doctoral training at Yale University under the direction of Alexander Petrunkevitch. This year marks the fiftieth anniversary of his first publication. Since that time, he has contributed numerous studies of spider morphology, systematics, parasites, and behavior. His How to Know the Spiders and Spiders of Connecticut have initiated most American arachnologists into the field. Kaston was instrumental in the foundation of the American Arachnological Society and served the society as a member of the editorial board and board of directors and for five years was associate editor of the Journal of Arachnology. His many contributions were recognized this summer when he was among the first ten Honorary Members elected by the society. Unable to attend the meeting, Kaston was visited afterward by president Jerome Rovner and several other members who notified him of this honor and also presented him with a plaque which recognized his unique contributions:

The American Arachnology Society
Gratefully Acknowledges and Honors
The Special Contributions Of
B. J. Kaston
To Our Science --
His Books Held The Keys
Enabling Us To Begin To Know
The Spiders

HONORARY MEMBERS ELECTED

At this summer's meeting, the American Arachnological Society announced the election of its first Honorary Members. The ten persons who were so recognized for their significant contributions to the field of arachnology include:

Pierre Bonnet
Willis J. Gertsch
H. Hommann
Benjamin J. Kaston
Reginald F. Lawrence
Herbert W. Levi
G. H. Locket
A. F. Millidge
Max Vachon
Takeo Yaginuma

1986 MEETING

The 1986 meeting of the American Arachnological Society will be at Lindenwood College from Wednesday, June, 18 1986 through Sunday, June 22, 1986. Lindenwood College is located in Saint Charles, Mo; about 20 minutes west of Lambert International Airport in Saint Louis. For those of you that will be driving, we are just off interstate 70, west of St. Louis. The metro area offers much in addition to the only National Meeting of Arachnologists in the Nearctic region for the year 1986, including 1) the Saint Louis Zoo, one of the best in the country, 2) Shaw's Garden, 3) the National Museum of Transportation, 4) our own Six Flags, 5) the Arch, as well as numerous historical sites, parks, Times Beach, and assorted tourist traps. Shuttle busses and car pools will be arranged to these sites for your amusement and/or collecting.

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AMERICAN ARACHNOLOGY is the newsletter of the American Arachnological Society and is sent only to society members. For information on membership, write: Dr. Norman I. 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.

Submission of items for AMERICAN ARACHNOLOGY or other correspondence concerning the newsletter should be directed to the editor, Dr. Brent D. Opell, Department of Biology, Virginia Tech, Blacksburg, Virginia, 24061, USA. Deadline for receipt of material for the fall issue of the newsletter is 24 September and for the spring issue, 24 March.

Lodging will be available on campus starting Wednesday (18 June) at noon. If anyone cares to remain following the meeting, we have made arrangements so that you can stay at the college until Tuesday, June 24 (you will be on your own for meals following the meeting). All rooms are air conditioned. A small pool is availale on campus for swimming. Motels are availale off-campus, but not within walking distance (and not at less expense).

Lodging:	Lindenwood Lodge (private baths)	
	Single Ooccupancy	$22/person/day
	Double Occupancy	$26/day
	Suites (Families)	$40/day
	Other Dorms (1 bath/ 2 rooms)	
	Single Occupancy	
	With Linens	$16/person/day
	No Linens	$14/person/day
	Double Occupancy	
	With Linens	$22/day
	No Linens	$20/day

A meal plan will be offerd at the following rate: Breakfast: $3.00/day, Lunch: $4.50 per day, Dinner: $5.00 per day. These rates are a bit more than we had hoped for, but you will find Lindenwood's food service to be good-to-excellent. There are no fast-food establishments within reasonable walking distance from the college. Registration costs have not been determined at this time, but should be comparable to other meetings.

Other Activities:
1) Receptions are planned for Wednesday, Thursday, and Saturday nights.
2) Friday night we will have a banquet. (The cost will range from $10 and $15 per person).
3) Field trips will be planned for collectiong, the Zoo, and the Garden.

In order to aid us in our planning and in the early construction of a mailing list, we ask that members planning to attend the meeting please complete the form inserted between pages 6 and 7 of the newsletter and return it as soon as possible. Your completed form and any questions should be sent to: Bill Tietjen, AAS Meeting, Department of Biology, Lindenwood College, Saint Charles, MO 63301. Phone Number: (314) 946-6912 Ext 232.

1985 SOCIETY ELECTION

The newly elected Executive Committee members are: President-elect William A. Shear, Director Frederick A. Coyle, and Treasurer Norman V. Horner. The 93 votes cast were considerably less than the 146 votes counted in last year's Board of Director's election. Could it be that this year's numbers are less because the ballot was mailed as an insert in the American Arachnology?

The number of ballots received by the 12 June deadline (10 ballots were received after the close of voting) only represented 22% of the total available voters. Eighteen percent of the votes cast were from foreign members, but this number is misleading as the total foreign membership is less than the U.S.A. membership. Thus, 13% of the available foreign members voted, whereas, 26% of U.S.A. members voted. The ballots were counted by James C. Cokendolpher, Oscar F. Francke, and Scott A. Stockwell. Anyone desiring a list of candidates and votes received should contact James Cokendolpher.

REVUE ARACHNOLOGIQUE SUBSCRIPTION

Beginning this fall, members of the American Arachnological Society will be able to subscribe to the Revue Arachnologique when paying their dues. Subscriptions will be accepted only by volume, rather than on a calendar-year basis, and will commence with volume 7 of the Revue.

GRANTS AND FELLOWSHIPS
FROM THE AMNH

Pre- and post-doctoral level arachnologists are eligible for the following grants and fellowships; application forms are available from: Office of Grants and Fellowships, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

(1) Collection Study Grants provide quick financial assistance to enable pre-doctoral and recent post-doctoral investigators to study the collections at the American Museum. Visits must be arranged through, and sponsored by, a member of the Museum's scientific staff; the maximum award is $400. There is no closing date, but applications shall be submitted at least two months before the proposed visit.

(2) The Theodore Roosevelt Memorial Fund supports studies of the fauna of North America; awards range from $200-$1000 and average about $550. Applications are due by Feb. 15.

(3) Research Fellowships are usually one-year in duration and are normally limited to post-doctoral researchers. Applications are due by March 15.

INTERNATIONAL COMMISSION OF ZOOLOGICAL NOMENCLATURE

The Commission hereby gives six months notice to the possible use of its plenary powers in the following cases, published in the Bulletin of Zoological Nomenclature, volume 42, part 1, on 2 April, 1985 and would value comments and advice on them from interested zoologists. Correspondence should be addressed to: Dr. R. V. Melville, Secretary, ===== International Commission on Zoological Nomenclature, (Natural History), Cromwell Road, London SW7 5BD, ENGLAND.

Case No.

1481 Argyrodes Simon, 1864 and Robertus O. Pickard-Cambridge, 1879 (Arachnida, Araneae): proposed conservation by the suppression of Argyrodes Guenee, 1845 and Ctenium Menge, 1871.

2484 Olpium L. Koch, 1873 (Arachnida, Pseudoscorpionida, Olpiidae): proposed designation of type species and related problems.

2480 Erigone Audouin, 1826 (Arthropoda, Araneae): proposed designation of type species.

USSR ARACHNOLOGY GROUP FORMED

The All-Union Entomology Society of the USSR recently established an Arachnology Section whose Council consists of:
Chairman -- Prof. V. P. Tystschenko, Leningrad.
Chairman Assistant -- Dr. V. I. Ovtcharenko, Leningrad.
Secretary -- K. G. Mikhailov, Moscow
CIDA Correspondent -- Dr. A. S. Utotchkin, Perm.

The resolution passed by this section at its First Coordination Conference on Spider Study follows. Additional information about this conference is published in: Zoologichesky Zhurnal, Moscow, 1985, vol. 64, n. 5:797-798. Correspondence should be addressed to: M. G. Mikhailov, Curator of Arachnids, Department of Invertebrate Zoology, Zoological Museum of the Moscow State University, USSR 103009 Moscow K-9 Herzen str., 6.

The First Coordination Conference on Spider Study took

place in the Zoological Institute of the USSR Academy of Sciences in Leningrad on 20 - 22 November 1984.

At the Conference were heard 35 reports on systematics, faunistics, and ecology of spiders. The Conference showed that there are specialists in different fields of spider study in the Soviet Union, to make it possible to carry out more fundamental research.

The Conference proposes to concentrate further work in the following aspects:

- study on spider systematics of the fauna of the USSR and of adjacent countries with the aim to create identification books and papers of different spider groups,
- faunistics of the USSR spiders, creation of a Catalogue,
- study on spider biology, ecology, and biogeography using modern methods of research,
- study on spider morphology and anatomy,
- elaboration of biological and integrative methods of pests' control using spiders,
- coordination in the other fields of practical importance of spiders, particularly of their poisons.

Taking into consideration an increase in the number of arachnologists in the USSR and the complexity of their tasks, the Conference considers it necessary to create a Section of Arachnology in the All-Union Entomological Society and to make an appropriate application to its Presidium.

This Section must unite the specialists in arachnology except acarologists.

The Arachnological Conferences must be carried out once in 4 years. The next one will take place at the Perm State University in the first half of 1988.

With the aim to give better information to foreign specialists about Russian arachnological papers, all members of the Section ought to communicate to the CIDA correspondent about all published scientific papers.

With the aim to ensure a better preservation of type materials, it is recommended to hand over the types and type series to the collections of the Zoological Institute of the USSR Academy of Sciences, Leningrad, and/or Zoological Museum of the Moscow State University, Moscow.

Reference arachnid collections housed at the Zoological Institute and Zoological Museum must be increased. With this aim it is recommended to send determined materials of rare and interesting species to these institutions.

Accepted at the final meeting on 22 Nov. 1984

1987 MEETING

LAS CRUCES - NEW MEXICO

The American Arachnological Society will hold its 1987 National Meeting at New Mexico State University, Las Cruces in late June. The co-hosts, Marsha Conley and David Richman are seeking ideas and volunteers for a possible symposium. If you are interested in organizing a symposium, please contact: David Richman, Department of Entomology and Plant Pathology, New Mexico State University, Box 3BE, Las Cruces, New Mexico, 88003.

1986 INTERNATIONAL CONGRESS JACA, SPAIN

The X International Arachnological Congress will be held from 2-7 September 1986, in Jaca, Spain, located in the spanish Pyrenees. Papers will be presented in Spanish, French, English, and German. Persons wishing additional information and a registration form should write as soon as possible to: Secretaria del X Congresso Internacional de Arachnologia, Apdo 64, JACA (Huesca), Espana.

GERTSCH REPRINTS AVAILABLE

Reprints of the following publications by Willis Gertsch are available. Requests should be addressed to Vincent Roth, Southwestern Research Station, Portal, Arizona 85632.

1932. A new generic name for Coriarachne versicolor Keyserling, with new species.

1936. New Spiders from Texas.

1939. (& Mulaik) Report on a new Ricinuleid from Texas.

1939. A new genus in the Pholcidae.

1940. (with R. V. Chamberlin) Descriptions of new Gnaphosidae from the U.S.

1942. New American Spiders of the Family Clubionidae. III.

1946. Report on a collection of Spiders from Mexico V.

1951. New American Linyphiid Spiders.

1953. The Spider genera Xysticus, Coriarachne, and Oxyptila.

1955. A List of the Spiders of the Grand Teton Park Area.

1955. The Spider Genus Neon in North America.

1958. The Spider Family Plectreuridae.

1958. Results of the Puritan-American Museum Expedition to Western Mexico: The Scorpions.

1958. The Spider Family Diguetidae.

1960 The Fulva group of the Spider Genus Steatoda.

1960. The Family Symphytognathidae.

SOCIETY ARCHIVES ESTABLISHED

The American Arachnological Society is establishing an archives in order to provide a chronical and documentation of its history. Vincent Roth (Southwestern Research Station, Portal, Arizona 85632) has accepted responsibility for gathering and organizing this material. If you have items that might be useful for the archives, please send these to Vincent. At this time, a special effort is being made to obtain a complete set of materials from the society's meetings. Below is a list of these meetings and the materials still missing from the archives.

Key to Items Needed for The Archives:

PR: Program (if any).
PH: Photo (if any).
A: All Material Needed.

Meetings of the American Arachnological Society

1967. Informal meeting at "Spiders and Entomology" Symposium of Entomological Soc. of America; New York, N.Y.

1972. Organizational meeting of the American Arachnologist and the establishment of the American Arachnological Society; Portal, Arizona. Hosts: V. Roth and W. Gertsch.

A 1973. Western: Silver City, New Mexico. Host: Don Lowrie. (Listed in AA#9 as "2nd International").

A 1973. Eastern: Penn. State Univ., Univ. Park, Penn. Host: Bob Snetsinger.

A 1973. Southeast: Welake Reserve, St. Johns River nr. Welake, Florida. Host: Johnathan Reiskind.

A 1974. Western: Las Vegas, New Mexico. Host: Don Lowrie.

A 1974. Eastern: Lynchburg College, Lynchburg, Virginia. HostL Jim Carico.

1975. First International and 4th Annual Meeting. Warrensburg, Missouri. Host: William Peck.

1976. Western: San Francisco, Ca. Host: Stan Williams.

A 1976. Eastern: Southern Illinois University, Carbondale, Illinois. Host: Joseph Beatty.

PH, PR 1977. Western: Brigham Young Univ., Provo, Utah. Host: D. Allread.

A 1977. Western Carolina State Univ., Cullowhee, N.C. Hosts: Fred Coyle and J. McCrone.

PH 1978. Second International and National Meeting. Univ. of Florida, Gainesville, Florida. Hosts: Jonathan Reiskind, John Anderson, and Willard Whitcomb.

PH, PR 1979. Western: Midwestern State University, Wichita Falls, Texas. Host: Norman Horner.

A 1979. Eastern: Hope College, Holland, Michigan. Host: Allen Brady.

A 1980. Eastern (only): Univ. of Cincinnatti, Cincinnatti, Ohio. Host: George Uetz.

PR, PH 1981. Third International Meeting. Univ of Tennessee, Knoxville, Tenn. Host: Susan Riechert.

PR, PH 1982. Western: Doane College, Crete, Nebraska. Host: Bill Rapp.

A 1982. Eastern: Hampden-Sydney College, Hampden-Sydney, Virginia. Host: Bill Shear.

1983. Western: Utah State Univ., Logan, Utah. Host: K. Denne.

A 1983. Eastern: Ohio Univ., Athens, Ohio. Host: Jerome Rovner.

1984. Fourth International Meeting. Tulane Univ., New Orleans, La. Host: Terry Christenson.

1985. National Meeting (marks the end of regional meetings). Los Angeles County Nat. Hist. Museum, Los Angeles, Ca. Hosts: Blaine Hebert and Charles Hogue.

DANGEROUS APHONOPELMA?

Carolina Biological Supply Company
2700 York Road
Burlington, North Carolina 27215

To Whom It May Concern:

Because of the excellent reputation of your firm in providing specimens and supplies for science education, I am sure that you wish to review the accuracy of the prepared displays that you offer in your catalog. As advertised in your latest brochure, the BIOSMOUNT preparation "Dangerous Arachnids" (Cat. 26-2254) reflects an outdated view of the tarantula Aphonopelma. While Hollywood would like us to believe it to be deadly, such misinformation does not belong in a display that is intended to inform students about scientific information. Indeed, the widespread keeping of these spiders as pets -- readily handled and having such a mild venom that the bite (if one forces the tarantula to bite) is less bother than a honeybee sting -- makes your inclusion of this animal in a display on dangerous species misleading and inaccurate. If you would like to have the names and addresses of fellow arachnologists who will substantiate my complaint, I shall be happy to provide you with a list. I can also supply a list of references on which I base my information. Please let me know if I can be of such help in improving the accuracy of this display, which obviously should become a smaller display by lopping of the bottom third -- with its tarantula.

Sincerely,

Jerome S. Rovner
Professor of Zoology

JOURNAL BACK ISSUES

The previous newsletter incorrectly reported that the cost of back issues of The Journal of Arachnology was 8.34 per number. The correct price is $10.00 per number. Orders for back issues should be addressed to: Dr. Susan E. Riechert, Department of Zoology, University of Tennessee, Knoxville, TN 37916.

RESEARCH REPORTS

Jonathan Reiskind
Department of Zoology
223 Bartram Hall
University of Florida
Gainesville, FL 32611

At the present time my research interests fall broadly into the areas of the three E's: evolution, ecology and ethology and they are restricted to the order Araneae.

I. Systematics of the Castianeirinae.

Whether the name of this monophyletic subfamily ought to be changed or not is still not resolved. However the revision of the group continues. I am presently working on two projects: (1) the genus Myrmecium, a group extremely modified for ant-mimicry (apparently using Eciton as models), and found exclusively in South America and (2) the genera Supunna and Corinnomma of quite different genera found in Australia, the former a non-mimetic black and white form and the later more ant-like.

II. Biogeography of Floridian spiders.

Most of the spider species found in peninsular Florida are immigrants with a few recently evolved autochthonous species. The Pleistocene history of Florida is still not entirely clear but it is agreed that much if not all of the peninsula of Florida was submerged about one million years ago and that, during the fluctuations of the sea levels during the ice ages, there was more and more dry land during each glacial episode. Thus the distribution of the present spider fauna requires dispersalist as well as vicariant explanations. I have been collecting data to document the

origin of the spider fauna of peninsular Florida, with special attention given to those whose origins are local.

III. Spiders of the Dominican amber.

Among the richest sources of fossil arthropods of the New World is the amber from the Oligocene/Miocene of Hispaniola. I have been working with a collection of over 100 specimens and, while the fauna is remarkably similar to that of the present Greater Antilles, it is distinct in many specific aspects. A distinct and new Lyssomanes species has been discovered with affinities to the antillanus group. The usefulness of fossils may be many facetted. They may give insight into the phylogeny of a group, perhaps even supplying direct ancestral forms (in the restricted areas of islands). They are surely useful in understanding the ecology of an ancient community and surely tell us something about the group's biogeography.

IV. Spider-plant associations.

My interest in spider-plant associations ranges from spiders restricted to certain habitats in which one plant species predominates (e.g. Spanish moss and Rosemary) to intimate associations of spiders with plants (e.g. Misumenops nepenthicola with the pitcher plant, Nepenthes, and the salticid species, Uluella formosa, with the tropical forest grass, Olyra latifolia). With respect to the last example, I plan to follow up some preliminary research on this unique association in the next year. At present I am studying the autecology of the Rosemary Wolf Spider, Lycosa ericeticola, an associate of the rosemary, Ceratiola ericoides, in its highly restricted range and habitat in northern Florida.

David B. Richman
Department of Entomology and Plant Pathology
Box 3BE, New Mexico State University
Las Cruces, NM 88003

My current research on spiders continues to be centered on a revision of the salticid genus Hentzia. I have examined the available types and have finished my examination of the American Museum of Natural History specimens. I am now working on material from the Museum of Comparative Zoology. In addition to the AMNH and MCZ material, I have examined specimens in the Canadian National Collection, Texas A. and M., University of California - Berkeley, the Exline-Peck Collection, the California Academy of Sciences and the British Museum (Natural History). I have also borrowed the Florida State Collection of Arthropods Hentzia and will be examining these after I finish with the MCZ material. The genus contains nearly 20 species, including at least four undescribed. It is now known to occur from Nova Scotia and Quebec west to Minnesota, south through central Texas and Florida and the Caribbean to the north coast of South America. It occurs on both coasts of Mexico and Central America and north through Sonora and into SE Arizona. The center for species diversity seems to be in Cuba, with at least seven species. Cuba is also a center for confusion, with specimens often exhibiting characteristics of two species. I would be interested in obtaining more Cuban material, especially with ecological notes. The related monotypic genus Anoka is known from St. Vincent, Grenada and Trinidad. I hope to finish the revision within a year. Wayne Maddison has kindly consented to do habitus drawings for me at Harvard.

Vincent D. Roth
Southwestern Research Station
Portal, Arizona 85632

At the present time Barbara and I are completing the second edition of the Handbook for Identification of North American Spider Genera. Separate family keys have been prepared to 8 eyed spiders and to 0-6 eyed spiders, the charts expanded for the aerial-web spiders, over 100 illustrations completed for Herb Levi's araneid key, and a key to the Phrurolithinae (Clubionidae) by Andy Penniman have been added. In addition, extensive changes and additional illustrations have been made throughout the Handbook.

Descriptions of two new genera, a clubionid from California and a clubionid-like species (family?) from Florida and the Bahamas are being prepared. A Handbook for Terrestrial Arthropods (other than insects, mites and aquatic crustaceans) is planned and sections for arachnids have already been completed. With the help of James Cokendolpher, the section on opilionids (about 56 genera, 203 sepcies) has been started. A list of Erigoninae with synonymies is on Devin Carroll's computer and ready for final revisions.

Our plans for 1986 are to retire, attend the International Arachnological Congress in Spain and travel and work in various countries while collecting spiders. We will return to Portal occasionally to answer mail and update the Handbooks.

Ann L. Rypstra
Department of Biology
Miami University
1601 Peck Boulevard
Hamilton, Ohio 45011

Greetings from SW Ohio! I now begin my fourth year at Miami University with some excitement and some dread. Last spring my status at Miami changed so that I am no longer "just visiting." I am now considered "tenure-track." This change did not affect my obligations or the nature of the job I do; that is, I still teach many classes each semester on the Hamilton Campus of Miami. However, I am very happy to have some job security for awhile.

My general research interests focus on foraging behavior in web-building spiders. In particular, I am interested in how they modify their foraging behavior patterns when they aggregate or become social. I have been trying to get funding to go to Peru to work with Anelosimus eximius and Philopenella republicana in the rain forests there. The data I have collected thus far indicates that there is an efficient (optimal?) group size for a given prey size upon which A. eximius feeds. The group size also appears to be dependent on how hungry the spiders are. I am interested in investigating this behavior sequence further in light of current foraging theory. The last time I was in Peru I found P. republicana to be quite common. I observed groups of this species feeding communally on large prey fairly frequently. Since there are so few orb-weavers that display this behavior pattern, I should like to look at the circumstances under which it occurs more rigorously.

For the last two summers I have remained in Ohio. Research here focuses on two common species on campus; Achaeranea tepidariorum and Nuctenea cornuta. Both of these species form extensive aggregations on the buildings here in Hamilton. I have been looking at modifications in the prey capture behavior and aggressive interactions in these species at different prey levels.

This fall Karen Cangialosi, recently of George Uetz's lab at University of Cincinnati, has come to Miami to pursue her Ph.D. with me. So far we have just been dabbling and have no specific plans for her dissertation research. However, she does seem to be thinking about doing something with insect parasitoids on spiders.

For those of you not familiar with the anatomy of Ohio, Miami University is located just NW of Cincinnati. This location makes regular exchanges with the Uetz lab possible. In the last year we have frequently traded information, thoughts, and ideas as well as some really good barbecue chicken. Certainly any spider folks that happen through the area are welcome to share in any of the above along with a free place to stay!

Robert B. Suter
Department of Biology
Vassar College
Poughkeepsie, NY 12601

Nearly all of my research effort in recent years has been devoted to the ethological and ecological studies of the bowl and doily spider (Frontinella pyramitela), a linyphiid that is common throughout most of the United States. These spiders are easily maintained in the laboratory and both sexes of adults are abundant for at least two months of the summer in southern New York, attributes of the species that make its study particularly convenient for an academic. My most current work can be divided into several discrete categories:

Orientation: This past summer I and Cari Shane, an undergraduate at Vassar, looked into the cues used by F. pyramitela in choosing oviposition sites. In earlier studies of other aspects of orientation, I had shown that F. pyramitela uses gravity, vibrations, web tension, pheromones, and the physical structure of its environment as cues in its orientation. As a result of a series of choice experiments, it became clear that three environmental parameters, gravity, humidity, and substrate macrostructure, were central in the spider's decisions. Interestingly, we also found that the cues were arranged in a loose hierarchy such that, for example, spiders appeared to be geonegative when the only humid location was "up", but were uniformly geopositive under 100% RH conditions. A field study indicated that our laboratory findings were reflections of the spiders' natural behavior - all egg masses collected from a field enclosure were found on the soil or within 2 cm of the ground, always in a depression or other partially enclosed site.

Communication: Bowl and doily spiders have a large repertoire of signals that they use during agonistic interactions and during courtship. Both sorts of interactions involve vibratory and tactile signals, and courtship involves chemical signals as well. Cari Shane, Andrea Hirscheimer (a recent Vassar graduate), and I have now completed a study of the behavioral effects of cuticular pheromones. Our evidence indicates that chemicals on the surfaces of males elicit aggressive behavior from other males and that cuticular chemicals on females elicit courtship from males. Interestingly, females show no discrimination on the basis of chemicals, between males and females of their own species. A logical and necessary next step in these studies is the characterization of the pheromones, a step we will undertake next summer.

Communication also occurs between predators and prey. Bowl and doily spiders occasionally fall prey to Argyrodes spp., theridiid spiders that often can be found inhabiting the webs of F. pyramitela. Perhaps the most interesting information to emerge from my work this past summer is that F. pyramitela exhibit a series of stereotypic, intense, touch/escape behaviors on contact with carcasses of Argyrodes but not on contact with carcasses of other allospecific spiders. Moreover, these behaviors disappear when the Argyrodes carcass is washed in a solvent, evidence that a cuticular kairomone is involved.

Behavioral senescence: Male F. pyramitela had been thought to do no web-building as adults but rather to only wander among the webs of females, foraging and copulating as they went. I and Andrea Hirscheimer have found, to the contrary, that nearly all males are capable of building functional and structurally normal webs for at least the first few days after their final molt to adulthood. This past summer we investigated male web-building and its eventual senescence. We evaluated webs built by adult males with respect to overall structure, microscopic structure, size, and capture area, as those webs changed with the age of the spider. Along the way, we developed a densitometric/computer method for analyzing the shapes of sheet webs, a method that may be useful to those who wish to investigate the webs of other non-orb-building spiders.

1986 AAS MEETING
PRE-REGISTRATION FORM
PLEASE COMPLETE AND RETURN
AS SOON AS POSSIBLE

MEETING REPORT

BY

LOUIS SORKIN

I arrived at the LA Airport on June 23rd. It was Sunday and the AAS 1985 meetings were scheduled to begin the next day. At the luggage pickup, I "rubbed elbows" with a famous Californian celebrity, actress Susan Anton. I boarded the shuttle bus which dropped me off at the campus of The University of Southern California. I then met up with a fellow arachnologist, Jacqueline PALMER, who also had "rubbed elbows" with a famous Californian - poison oak (I admit that mine was the more pleasant experience). For the past two weeks, she had been with her husband and father on a mygalomorph collecting trip in northern California.

On Monday afternoon, the paper sessions were formally opened by Dr. Charles HOGUE of the L.A. County Museum of Natural History. Our vice president, Jerome ROVNER, was called upon to deliver his welcome speech, and Vince ROTH was later invited to report on the history and record keeping of the AAS. He advised us that this was to be our 14th Annual Meeting.

Over 50 AAS members and associates attended the meetings, including three colleagues from abroad: Wilson LOURENCO from France and Guenther FLEISSNER and Petra SIERWALD from Germany (this year she is at the Smithsonian Institution with Jon Coddington). Robin LEECH represented Canada.

Many aspects of arachnology were covered during the paper presentations, the major topics of the sessions were: Social Spiders (George UETZ, moderator), Physiology (Jacqueline PALMER, moderator), Taxonomy and Genetics (Gail STRATTON, moderator), and Webs and Behavior (Robin LEECH, moderator).

This meeting rewarded the participants with more than the usual one or two non-spider presentations, as an all-day Scorpion Symposium (Gary POLIS, moderator) had been organized for Tuesday's presentations. This year, three papers dealt with intertidal arachnids: Denise DUE reported on the biology of Vaejovis littoralis in Baja, California James BERRY reported on the construction and microscopic structure of the egg sac of Paratheuma insulanus, an inhabitant of tropical Atlantic shores ; and Robin LEECH reported on two introduced erigonid spiders, Haloratus reprobus and Islandiana princeps, discovered on certain Canadian shorelines.

Representative papers of the first day's sessions included: Deborah FRITZ, "Prey Size Dependent Cooperation in Social Spiders"; Jacqueline PALMER, "Histochemistry and Ultrastructure of the Silk Glands of Euagrus chisoseus" and Graeme WILSON answered the question, "Does a Mad Jumping Spider See Red?".

During the Scorpion Symposium, Oscar FRANCKE reported on "Life History Strategies: Inter- and Intraspecific Trends", David SISSOM presented his paper, "Systematics and Phylogeny of the Vaejovidae -- Preliminary Synthesis", and Guenther FLEISSNER spoke on "The Circadian Clock of the Scorpion -- A Challenge to Neurobiology".

Wednesday's meeting examined various araneological topics. Wayne MADDISON spoke on " Marchena minuta and Other Jumping Spiders Possessing An Apparent Leg-Carapace Stridulatory Mechanism", while Mark STOWE presented "Moth Sex Pheromone Mimicry in Two Genera of Araneids". Gail STRATTON reported on the "Geographic and Habitat Preferences in Schizocosa (Araneae: Lycosidae): Patterns of Cooccurrence in the S. ocreata Species Complex", Matthew GREENSTONE presented "Meteorological Determinants of Ballooning", and Norman PLATNICK told us everything we wanted to know about the spider family, Thaididae, including hints on how to extricate them from their retreats when dynamite and chain saws fail.

During one show-and-tell session, Charles KRISTENSEN displayed the paraphernalia associated with his work involving collection of spider venoms. All will admit that it "sparked" one's curiosity! A poster session had been prepared by some participants and was available throughout the meetings. A Journal flow chart depicted the pathways a submitted paper follows and was complete with photographs of those people responsible for providing the various right- and left-hand turns and occasional reversals that manuscripts take on their way to the published page.

The banquet was held on Tuesday evening when we were hosted to a Mexican style dinner. Blaine HEBERT, our meeting coordinator, invited a botanist to demonstrate the various plant communities by way of slides to those of us who would be planning collecting trips in the area after the meetings. Jerome ROVNER displayed the plaque destined for presentation to B. J. KASTON for all his many years of arachnological endeavors. Although B.J. was unable to attend the meeting due to illness, Jerry and several other arachnologists visited him afterward and presented the placque at the time.

The plaque reads:

The American Arachnological Society
Gratefully Acknowledges And Honors
The Special Contributions of
B. J. Kaston
To Our Science --
His Books Held The Keys
Enabling Us To Begin To Know
The Spiders

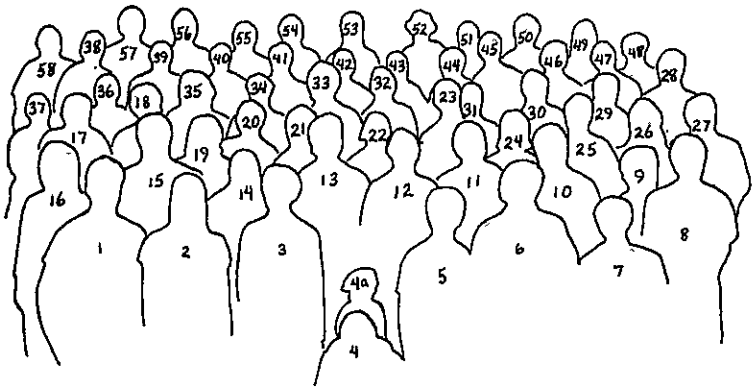
The business meeting was held on Wednesday evening and was attended by many.

I would like to extend a vote of thanks to Blaine HEBERT who coordinated the meetings and almost single handedly arranged everything so as to make our 1985 AAS meetings both memorable and exciting.

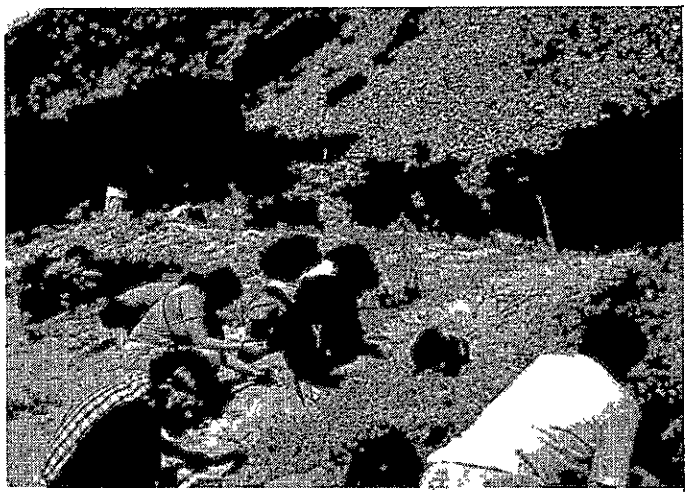
KEY TO MEETING PHOTO

BY

BLAINE HEBERT



1. Blaine Hebert, 2. Jackie Palmer, 3. Graeme Lowe, 4. Guenther Fleissner, 4a. Fleissner Jr., 5. Judy Peterson, 6. Ray Peterson, 7. Petra Sierwald, 8. Wayne Maddison, 9. Gerta Fleissner, 10. Gary Polis, 11. Scott Stockwell, 12. Oscar Franke, 13. Graeme Wilson, 14. Denise Due, 15. Tom Root, 16. Gail Stratton, 17. Steve Kutcher, 18. Matt Greenstone, 19. Barbara Roth, 20. Vince Roth, 21. Debbie Fritz, 22. Marjorie Moody, 23. Devin Carrol, 24. Ann Mayo, 25. Chris Myers, 26. Marie Turner, 27. Bob Palmer, 28. Ken Schulteure, 29. Norm Platnick, 30. Bruce Firstman, 31. Lorna Levi, 32. Norman Horner, 33. Charles Kristensen, 34. Louis Sorkin, 35. Nancy Reagan, 36. Karen Cangialosi, 37. Maggie Hodge, 38. Jack Kaspar, 39. Jerry Rovner, 40. Jim Berry, 41. Lenny Vincent, 42. Martin Galindo-Ramirez, 43. Herb Levi, 44. Dan Gilman, 45. Mel Thompson, 46. James Cokendolpher, 47. David Sissom, 48. Mark Stowe, 49. Mike Witlock, 50. John Coddington, 51. Wendell Icenogle, 52. David Sivertson, 53. Allen Brady, 54. Evert Schlinger, 55. George Uetz, 56. Craig Hieber, 57. Frank Ennik, 58. Robin Leech



Collecting Lutica at Point Mugu, Ventura Co., California. Photo by Herb Levi.

FIELD TRIP REPORT

BY

JONATHAN CODDINGTON

After three days of excellent meetings in near freezing indoor temperatures, arachnologists set forth in near flash-point temperatures for two days of montane and coastal collecting and/or arachnid watching. The field trips, ably organized by Blaine Hebert, Chuck Kristenson, Martin Galindo-Ramirez, and with Wendell Icenogle as consultant were flexibly planned to include one day of collecting in the mountains and one day in coastal canyons and beach habitats.

The montane day began on June 27th, with a stop in Los Angeles County, Georges Gap, at 3600 ft. One side of the road (Angeles Crest Highway) featured chaparral, the other oak scrub. Colleting was meager under the ample sun and heat, but people did see/get Hololena, Kibramoa, Physocyclus, Metepeira and Achaearanea, as well as linyphiine linyphiids.

The second site, on the same highway at Switzers Camp, was a mesic forest next to a shaded stream, and probably the most productive of the trip. We found several opilionids (Protolophus, Loronychus, Ortholasma), as well as the spider genera Pardosa, Steatoda, Titanoeca, Xysticus, Liocranoides, Aptostichus, Metaphidippus sp., M. manni, Maevia, Habronattus and Thiodina. Some people caught vertebrates. We then stopped for lunch at the Mt. Wilson Observatory, evidently the local hang glider hang out. Our third stop of the day, between Camp Valcrest and Mt. Waterman, was a dry stream gulch at 6000 ft (another hot one). We found Alopecosa, Euryopis, Araniella displicata, Steatoda albinotata, Calymmaria, Callobius, Xysticus, Agroeca, Drassylus, Dictyna, Coriarachne, Physocyclus, at least one pseudoscorpion, and the scorpion Anuroctonus.

The fourth stop was at Chilao Flats, where the group split, some going back to Los Angeles and some going to Palmdale, on the edge of the Mojave Desert, to blacklight scorpions. Blacklighting is fun, but our success and the activity of our prey was diminished by a beautiful half-moon. The most common scorpion was Paruroctonus sp., but we also dug out one trantula (now Euathlus sp?), and the occasional black widow.

On the 28th, our first stop was on Old Tapanga Canyon Road, another mesic site with a dry stream at the bottom. Mygalomorph heaven featured Hebistatus and Aptostichus, but your reporter did not learn what else had been found. However, our second stop provided a chance to clamber down poison oak choked slopes by rope to quite a nice stream, featuring Archaearanea, Amaurobius, Tylogonus, and, apparently, Willisus gertschi. Then followed an interesting interlude, typical of large group field trips, where vehicles 1 and 2, or 3 and 4, got lost on the way either to lunch, or the next site, depending on who one asked. If you were in one of the vans going to the next site, one had a chance to wonder where the others had gotten to, walk in the Pacific, sift sand for zodariids, or observe California At Play. If you got lost while eating lunch, you had a good long time to do it.

The penultimate and most exciting stop was a a dune site to look for Lutica, the Elusive Zodariid. These preposterous animals spend their lives under shifting dunes in flimsy silk tubes. Catching them involves sifting through as much substrate as possible, like rooting for truffles. The polite, professional California Park Police also stopped here, obstensibly concerned about their dunes, but possibly more curious as to why humans dig in rows. It transpired that while we did have the necessary permit to collect, the paper was not with us. Caveat hospes. Following this incident the group again split, some returning to the Topanga Canyon site to search for more mygalomorphs, and some continuing on to that always productive habitat, the undeveloped house lot, to see and acquire Lutica. I brought some back to DC to rear out, and can testify that they are unexciting pets, as shy in dixie cups as dunes.

My personal thanks to all the folks who provided field ID's of what they had found, and, especially, to that tiny but heroic band of Southwest Arachnologists who really tried and succeeded in providing good meetings, and, most of all, great trips.

ABSTRACTS

Abstracts of papers presented at the Los Angeles meeting are listed below in alphabetical order. Those from the scorpion symposium precede abstracts of the meeting's contributed paper sessions. The last name of the person who presented the paper is capitalized. Numbers in the brief topical index provided below refer to the number at the right of each abstract.

ECOLOGY AND POPULATION BIOLOGY

Scorpions: 1, 3, 7, 8, 12, 13.

Spiders: 15, 19, 28, 32, 33.

ETHOLOGY AND NEUROBIOLOGY

Scorpions: 1, 2, 4, 7, 8, 9, 13.

Spiders: 14, 15, 17, 20, 21, 23, 27, 29, 30, 31, 33.

MORPHOLOGY AND PHYSIOLOGY

Scorpions: 2, 3, 4, 5, 9, 12, 13.

Spiders: 22, 24, 25, 26, 27, 29, 30, 34.

EVOLUTION, SYSTEMATICS, AND BIOGEOGRAPHY

Scorpions: 6, 10, 11, 13.

Spiders: 16, 18, 24, 29, 31, 32.

SYMPOSIUM ON SCORPION BIOLOGY

DUE, Denise 1
THE BIOLOGY OF VAEJOVIS LITTORALIS WILLIAMS,
AN INTERTIDAL SCORPION FROM BAJA CALIFORNIA, MEXICO
Vanderbilt University

Vaejovis littoralis Williams is an intertidal scorpion inhabiting primarily the drift zone in the high intertidal of beaches in Baja California, Mexico. Density within the drift zone averages approximately 2-4/m^2 (island sites) to 12/m^2 (mainland sites). Populations are aggregated into patches. Primarily juveniles exhibit diurnal activity. Nocturnally active juveniles tend to be spatially segregated from nocturnally active adults within the drift zone.

Diet of V. littoralis includes the isopod Ligia, V. littoralis, spiders, pseudoscorpions, centipedes, and beetles. Prey size is not a function of predator size. Centruroides exilicauda, V. littoralis, and Ligia were observed as predators on V. littoralis.

The adult sex ratio is skewed toward females (1 male: 2.1 females). Adult females are usually larger than adult males. Litter size ranges from 1-8. Limited data suggest that offspring size and litter size increase with maternal size.

Vaejovis littoralis exhibits cryptic coloration, small size, and lithophilic tarsal claws, all of which favor intertidal existence. Although V. littoralis is able to withstand up to 12 hours of submergence, it does not survive submergence significantly better than a comparable desert species. Field data suggest that V. littoralis does not exhibit an endogenous tidal rhythm.

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FARLEY, Roger D. 2
INNERVATION AND PHARACOLOGY OF THE HEART OF THE DESERT SCORPION, PARUROCTONUS MESAENSIS STAHNKE
Department of Biology
University of California, Riverside

The scorpion readily changes heart-rate in response to external stimuli, and this is probably important in supplying oxygen to its tissues as the animal abruptly alters its behavior. The pacemaker for the heart is a slender ganglion (15 mm long, 50-60 um diameter) in the dorsal midline of the heart. The largest nerve cell bodies (30-45 um in diameter) occur in clusters along the length of the ganglion.

The output of the pacemaker ganglion is regulated by nerve fibers in the dorsal branch of the segmental nerves from the subesophageal and first three abdominal ganglia. In perfusion experiments on the isolated heart and ganglion, octopamine was found to be the most effective cardio-accelerator (10^{8}M), while gamma-aminobutyric acid reduced heart-rate. The effect of these agents on the heart was like that which occurred with electrical stimulation of the regulatory nerves.

In electron micrographs of the cardiac ganglion, nerve endings with electron-lucent vesicles 40-50 nm in diameter were most abundant. Bioamines such as octopamine have been associated with opaque granules in other studies, and such granules (170-250 nm diameter), present in some nerve endings with and without vesicles, were often seen in close apposition, suggesting chemical and electrical transmission. Possible gap junction particles and annular or double membrane vesicles were observed at some nerve-nerve junctions.

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FRANCKE, Oscar F. 3
LIFE HISTORY STRATEGIES: INTER- AND INTRASPECIFIC TRENDS
Department of Biological Sciences
Texas Tech University

The consequences of viviparity and precocial young have on scorpion life histories are analyzed. The upper limits on size of young at birth are related to morphological maternal constraints during parturition: larger females can bear relatively larger young. The lower limits of size of young at birth are related to the number of molts required to attain adult size and sexual maturity: relatively smaller young require more molts. Litter size is in turn related to mother/young size relationships: a pregnant female can carry more relatively smaller young. The predicted relationships have not been demonstrated within any given species, but they are revealed in interspecific analyses. The anatomy of the female's ovariuterus (ten versus anastomoses), and the method of embryonic nutrition (apokogenic versus katoikogenic) do not affect the interspecific relationships in life history parameters indicated above.

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GLEISSNER, Guenther 4
THE CICCADIAN CLOCK OF THE SCORPION: A CHALLENGE TO NEUROBIOLOGY
Zoologisches Institut der J. W. Goethe-Universitat

Our current knowledge on the neurobiology of the circadian clock of the scorpion Androctonus australis is to be described on the background of the visual system and the circadian change of sensitivity of the eyes. Tonic electrical activity in the efferent neurosecretory fibers (ENSF) is the circadian signal, which induces the high sensitivity of the eyes during the night state. Octopamine most probably functions as a neuroregulator of the ENSF and a neuropeptide is possibly a cotransmitter. The ENSF show an extensive interlacing between the left and the right sides providing the anatomical basis of the tight bilateral coupling in the circadian system. These fibers, distributing a basic circadian signal among different neuropil centers are an essential part of the clock. But it is still debatable whether they also belong to the frequency determining network. The clock functions as a multi-oscillator system with its component parts tightly coupled to each other. The oscillator driving the ERG rhythm seems to play an important role as a pacemaker for the clock system of the whole scorpion.

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HADLEY, Neil F. 5
SCORPION CUTICLE: A STRUCTURE-FUNCTION ANALYSIS
Department of Zoology
Arizona State University

A key factor in the success of scorpions has been the development of a cuticle that provides mechanical support as well as serves as a barrier between the animal and its environment. Strucutrally, the scorpion cuticle follows the basic Arthropoda plan. Sclerotized cuticle (e.g., tergal sclerite) features a thin, outer epicuticle and an underlying, thicker procuticle that can be further divided into an exo- and endocuticle. The outer part of the exocuticle ("hyaline exocuticle") and the whole of the inner exocuticle are constructed of helicoidally arranged planes of chitin microfibils. In the endocuticle, these microfibils are arranged in bundles oriented horizontally and vertically. A complex series of interconnecting channels traverses the entire cuticle, connecting the epidermis with the surface of the epicuticle. These channels are believed to be the pathways by which lipids, which provide the principal barrier to transcuticular water flux, are transported from their site(s) of synthesis to the outer epicuticle. Intersegmental or soft cuticle (e.g., lateral pleuron) contains the same epicuticular sublayers as sclerotized cuticle; however, the exocuticle is absent, there are no pore canals, and the wax canals have a regular substructure in their walls that is apparently unique to scorpions. Intersegmental cuticle in this region is also compacted into many deep folds which, when expanded (e.g., gravid females), result in a greatly enlarged surface area. It is not known to what extent lipids are deposited in the epicuticle of intersegmental membrane, nor is it known if the composition of lipids in this region is similar to that for sclerite cuticle. We are presently attempting to measure cuticular permeability in Hadrurus arizonensis in vivo by attaching a miniature, ventilated capsule directly to either sclerite or intersegmental cuticle and monitoring water flux electronically. Preliminary data suggest that intersegmental membrane is slightly more permeable than sclerite cuticle, but that water loss through the former also increases markedly when the surface is lightly rubbed with lipid solvents.

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LOURENCO, Wilson Roberto 6
SYSTEMATICS AND BIOGEGRAPHY OF SOME NEOTROPICAL SCORPIONS
Laboratoire de Zoologie (Arthropodes)
Museum National d'Histoire naturelle (Paris)

The systematics and biogeography of scorpions have progressed considerably in recent years; however population-wide patterns of differentiation and distribution are rare. Some examples of different patterns are proposed and discussed, in particular for various elements of the family Buthidae from South America. Three major regions are analyzed: (1) Guyano-amazonian where three kinds of patterns are defined: (a) species exhibiting a great character stability throughout the population (e.g., Tityus cambridgei Pocock, 1987, and Tityus metuendus (Pocock, 1897); (b) species with possible polytypic characters as (e.g., Tityus silvestris Pocock, 1897); (c) species with a clinal polymorphic character (e.g., Tityus gasci Lourenco, 1981). (2) Open vegetation formations (Caatinga, Cerrados and Chaco) of central South America, where almost all species of Tityus, Rhopalurus and Ananteris show a great stability of characters throughout the population. (3) Coastal Atlantic forests, where Tityus costatus (Karsch, 1879) appears to form a mosaic polymorphic species.

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MYERS, Christopher A. 7
BURROWING BIOLOGY AND SPATIAL DISTRIBUTION OF DESERT SCORPIONS
Department of General Biology
Vanderbilt University

The burrowing biology and spatial distribution of the desert scorpion Paruroctonus mesaensis was investigated. Individual P. mesaensis built their burrows into an incline and exhibited homing behavior. Light and temperature were found to act as environmental burrowing cues; there was no evidence of endogenous burrowing rhythms. First and second year P. mesaensis exhibited a significant association with areas of high vegetation cover and large perennials, while adults displayed a more random distribution. The implications of the observed spatial distribution, and various aspects of burrowing behavior are discussed. The burrowing biology of other scorpion species is also reviewed.

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POLIS, Gary A. 8
COMPETITION AND PREDATION AMONG DESERT SCORPIONS
Department of Biology
Vanderbilt University

Interactions among four species of desert scorpion were analyzed over a nine-year period at two sites in the Coachella Valley, California. Although these species are potential competitors that feed on similar arthropod prey, they also eat one another. Such intraguild predation is frequent and forms 8 - 21.9% of the total diet of the various species. A size difference is the key determinate of scorpion-scorpion predation with larger individuals always the predator; thus each species is both predator and prey as it develops from small newborn to larger adult size. Intraguild predation occurs most frequently on males, moving individuals, and when food availability is low. Predation by the numerically dominant species (Paruroctonus mesaensus, 95% of all individuals), causes substantial mortality: 8% and 6% of two smaller scorpions (Paruroctonus luteolus and Vaejovis confusus, respectively) and 10% of all newborn Hadrurus arizonensis were observed being eaten by P. mesaensis. The impact of P. mesaensis on the success of these three species was assessed using a 29-month experiment during which 6000 P. mesanensis were removed from 300 (100 m^2) quadrats. There were significant increases in the populations of P. luteolus and V. confusus (but not Hadrurus) in the removal quadrats as compared with control quadrats.

The hypothesis that exploitation competition for food was present and produced the experimental increases in density was also tested. Although there is extensive evidence that food limited feeding rates, growth, adult size, and reproduction, there was no evidence that food use by one scorpion depleted the availability of prey to other scorpions: neither the abundance of trapped prey, feeding rates nor body sizes were greater in the removal versus control quadrats.

We conclude that intraguild predation rather than exploitation competition is the major factor structuring the observed patterns of distribution and abundance of these scorpions. We conclude that aspects of foraging behavior and the spatial and temporal patterns of the surface activity of smaller scorpion species and age classes have coevolved largely to avoid predation by P. mesaensis. Many assemblages of scorpion species exhibit intraguild predation, and we speculate that this process produces behavioral and activity patterns similar to those observed in this study.

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ROOT, T. M. 9
THE NEURAL CONTROL OF SCORPION LOCOMOTION
Department of Biology, Middlebury College

Studies of invertebrate locomotion have helped us understand the neural basis of simple behaviors, and the scorpion Paruroctonus mesaensis has proven to be a particularly advantageous system to study because of the animal's relatively large size, simple nervous system, and transparent leg cuticle.

Cinematographic studies of walking scorpions have shown that the animal normally alternates the stepping of two sets of four legs, with quite constant latencies between the stepping of each leg. Removing one or two legs causes the animal to reorganize these stepping relationships, however, and changing the substrate texture or curvature generally increases the viability when each leg steps.

Electrical recordings from nerve cells, sensory receptors and muscles have helped us start to define the different components of the walking control system. The basic patterns of leg movements is generated by motor centers in the subesophaegeal ganglion on the brain, but how higher brain centers act to alter these patterns is currently unclear. Also, leg receptors such as slit sense organs, joint receptors and cuticular hairs are possibly involved in timing leg movements, but their exact role may be subtle, since experiments in which they are ablated seem to have little effect.

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SISSOM, W. David 10
PHYLOGENY OF THE VAEJOVIDAE (ARACHNIDE: SCORPIONES): PRELIMINARY SYNTHESIS
Department of General Biology
Vanderbilt University

The scorpion family Vaejovidae Thorell, 1876, is the source of considerable taxonomic confusion. The assignment of the subfamily Scorpiopsinae and the genus Nullibrotheas to the Vaejovidae has already been questioned, but relationships among remaining taxa have largely been neglected. Morphological evidence indicates that Syntropis and Vejovoidus are not closely related, and that the subfamily Syntropinae is not valid. This subfamily is defined by the possession of a single midventral metasomal keel on segments I-IV, rather than paired ventral submedian keels. Many other characters indicate important differences between Syntropis and Vejovoidus which clearly outweigh the carinal characteristic in significance.

The species groups of Vaejovis appear to belong to two distinct groups. One group contains the mexicanus, minimus, nitidulus, and wupatkiensis groups and can be defined by the possession of a serrula on the cheliceral movable finger and a distinct white patch on the pedipalp chela fingertips. Uroctonus and Pseudouroctonus clearly belong in this group as well. The second group includes the eusthenura, punctipalpi, and intrépidus groups. Members of this group have trichobothria ib and it displaced distally on the fixed finger to the level of the sixth inter accessory granule and a spinule row on tarsomere II of the legs which terminates between three pair of small spines. Syntropis appears

related to, if not subordinate to, this group. The relationships of other genera remain unclear.

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STOCKWELL, Scott A., and FRANCKE, Oscar F.
THE SCORPIONS OF COSTA RICA
Department of Biological Sciences
Texas tech University

Seventeen species of scorpion, representing four families and seven genera, are found in Costa Rica. Of these, two genera (Centruroides Marx and Didymocentrus Kraepelin) and eight species (Centruroides bicolor [Pocock], Centruroides gracilis margaritatus [Gervais], Centruroides thorelli [Kraepelin], and Didymocentrus concavimanus new species) are distinctly Central American in origin. Four genera (Ananteris Thorell, Tityus Koch, Chactas Gervais, and Opisthacanthus Peters) and eight species (Ananteris ashmolei Lourenco, Tityus championi Pocock, Tityus forcipula Pocock, Tityus pachyurus Pocock, Tityus dedoslargos new species, Tityus ocelatus new species, Chactas chrysopus Pocock, and Opisthacanthus valerioi Lourenco) are Amazonian in origin. Isometrus maculatus (de Geer) is pantropical in distribution (introduced) and has its origins in Asia.

Although Costa Rica has no endemic genera, C. koesteri and D. concavimanus, from the dry forests of Guanacaste Province, and T. ocelatus and T. dedoslargos, from eastern and southern Costa Rica, are known only from this country. Opisthacanthus valerioi is endemic to Cocos Island.

In the present work, Centruroides rubricauda (Pocock) is synonymized under Centruroides limbatus (Pocock) and three new species are described.

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TOOLSON, Eric C. 12
REPRODUCTIVE BIOLOGY OF SCORPIONS
Department of Biology
University of New Mexico

In five species of scorpions from three families (Vaejovidae, Iuridae, and Buthidae), total dry mass of newborn progeny represents 37.5 ± 3.05% of material dry mass. No dependence of clutch dry mass on maternal mass is evident in the data. Proportional investment in individual young decreases with female size, but the regression coefficient in Hadrurus arizonensis (Iuridae) is nearly an order of magnitude less than in the other families. The total number of young per clutch is positively dependent on maternal dry mass, but once again, the relationship is different in H. arizonensis. During embryogenesis, dry mass of embryos increases signficantly in all species, but in Centruroides sculpturatus (Buthidae) embryonic growth is apparently completed by the time the median eye spots are pigmented; in the Vaejovidae and Iuridae, considerable mass increase occurs after this stage. In all species, embryonic scorpions accumulate relatively large stores of water. The adaptive significance of these data are discussed.

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WARBURG, M. R. 13
HABITAT PARTITIONING BY SCORPIONS INHABITING THE MEDITERRANEAN REGION OF NORTHERN ISRAEL
Department of Biology
Technion (Haifa, Israel)

Six scorpion species are known to occur in the Mediterranean region of northern Israel. Two of them are represented by two subspecies each. Some of these species can occur in the same habitat. Their habitats range from dense oak-woodland with 900 mm rainfall to grassland bordering with arid region with 200 mm rainfall. Two species possess large pedipalps: a scorpionid, Scorpio maurus fuscus, and a large diplocentrid, Nebo hierichonticus weighing over 9 g. The smallest species, Compsobuthus spp. weighs less than 0.1 g. They also differ in their behavior, some species (the xeric ones) being more nocturnal than others. These xeric species, Leiurus quinquestriatus and Buthotus judaicus, are also capable of staying for longer periods at higher temperatures. The rate of water loss was lower in these species and did not increase markedly with rising temperatures or low humidities, as in the mesic species. Haemolymph osmolarity was high in all species (lower in winter than in summer), but only in the xeric ones did low humidity cause a lower concentration of haemolymph, the ions changed accordingly. Water content of the various compartments of the body varied between species and changed with season and moisture conditions. Thus, the various scorpion species occupy different microhabitats in time and space resulting from their anatomical and physiological adaptations.

PAPER PRESENTATIONS

BERRY, James W. 14
THE CONSTRUCTION AND MICROSCOPIC STRUCTURE OF THE EGG CASE OF THE INTERTIDAL SPIDER, PARATHEUMA INSULANUS (DESIDAE)
Department of Zoology
Butler University

Paratheuma insulanus builds its egg cases in depressions on the underside of broken-up rock below the high tide line of the tropical Atlantic shores. After all the silk is added to the egg case, the spider adds a surface coating of oral secretions about 40 μm thick. Ruthenium red staining indicates the secretion is a glycoprotein. Individual fibers within the egg case are also surrounded with a similar-staining substance from the spinning apparatus. No function for the egg case coating has been established, but it may be important in waterproofing. Because of the location of the egg cases, it is likely that they are covered periodically by seawater sometime during the approximately 40 days between the egg laying and time of emergence of the young from the egg case. Preliminary experiments have shown that the adult spiders in their retreats can survive longer than 12 hours when submerged in seawater, but the effect of seawater on the egg case has not been investigated.

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CANGIALOSI, Karen R., UETZ, George W. 15
THE INFLUENCE OF ENVIRONMENT, HEREDITY, AND JUVENILE EXPERIENCE ON THE SOCIAL STRUCTURE OF A COMMUNAL TERRITORIAL ORB-WEAVING SPIDER
Department of Biological Sciences
University of Cincinnati

Metepeira spinipes, a communal/territorial orb-weaver from Mexico, shows considerable geographic variation and temporal flexibility in group size and social spacing. A series of laboratory studies was conducted to test whether the variation observed in the field is the result of behavioral plasticity, or the result of genetic mechanisms inherent in different populations. Spiders from source populations in desert and moist tropical habitats were collected as eggs and raised in the laboratory under identical controlled conditions. Measurements of three-dimensional spacing parameters in laboratory colonies (nearest neighbor distance, within-colony density) have shown significant differences in spatial organization between populations suggesting differences in genetic makeup. To test for the effect of experience on tolerance, experiments were conducted rearing tropical and desert spiderlings in isolation and in communal groups. Tropical spiders put together after isolation show spacing patterns and nearest neighbor distances similar to those seen in the communally reared groups. Desert spiders show an initial effect of isolation on tolerance of conspecifics that is eventually modified by communal adult experience. These results, and observations of agonistic behavior differences, suggest that there may be different behavioral mechanisms within each population involved in shaping the social structure of Metepeira spinipes.

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CODDINGTON, Jonathan 16
THE GENERA OF THE SPIDER FAMILY THERIDIOSOMATIDAE
Department of Entomology
Smithsonian Institution

The family Theridiosomatidae has been revised at the generic level. Of the 21 genera historically associated with theridiosomatids, 17 belong in other families, are incertae sedis, or are synonyms, but four are retained in Theridiosomatidae. Two new subfamilies, four new genera, and four new species (of the many out there) are described; one new generic name is proposed. The sister taxon of Theridiosomatidae is the mysmenids, anapids, and symphytognathids, taken as a whole. A cladogram for theridiosomatid genera is presented, based on both morphological and behavioral data.

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FRITZ, Deborah M., and UETZ, George W. 17
PREY SIZE DEPENDENT COOPERATION IN SOCIAL SPIDERS
Department of Biological Sciences
University of Cincinnati

The influence of prey size on cooperative behavior was investigated in two social spider species. Prey capture and feeding behavior were observed in colonies of Mallos gregalis and Analosimus eximius, which were fed different sizes of prey. Both species attacked prey and fed solitarily when Drosophila were offered as prey, and communally when given larger Musca and Sarcophaga as prey items. The number of spiders feeding was positively correlated with prey size/spider size. When given smaller prey items, spiders were observed struggling over prey, with many attempted thefts. These findings are consistent with predictions of a model which suggests that individuals only maximize energy gain by foraging cooperatively and sharing food only when prey size is large relative to spider size. For social spiders, there appears to be a critical threshold of prey size, below which cooperative behavior is not seen. Above defending prey and feeding solitarily.

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GALINDO-RAMIREZ, Martin 18
GENETIC DIVERSITY AMONG ISOLATED POPULATIONS OF
THE SPIDER GENUS LUTICA (LABIDOGNATHA, ZODARIIDAE)
Biology Board of Studies
University of California, Santa Cruz

Populations of the spider genus Lutica are compared electrophoretically using starch gel electrophoresis at eight gene loci. Given the geographic isolation of populations, along with Lutica's fossorial habits and low dispersal abilities, the potential for inbreeding, genetic drift and subspeciation is great. A pairwise comparison of 13 populations from Southern and Baja California, including four of the Channel Islands, based on Nei's (1972, 1978) indices of genetic distance and similarity, is performed to determine the nature of the relationships among the populations. Similarity values (I) among the mainland populations in both the north (Santa Barbara, Ventura Counties) and south (Los Angeles, San Diego Counties, Baja California) are high, while the similarity between populations in these two areas is low, suggesting separate species in each region. Among the islands, San Nicolas and Santa Catalina demonstrate the lowest degree of similarity, while San Miguel and Santa Cruz show the highest level results which are consistent with the existence of separate species on San Nicolas and Santa Catalina and the geologic history of this region. Both northern (San Miguel, Santa Cruz) and southern (San Nicolas, Santa Catalina) islands are about equally similar to their corresponding mainland regions. The electrophoretic results are discussed in the light of Gertsch (1961) and his current revision of Lutica (in progress).

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GREENSTONE, Matthew H. 19
METERORLOGICAL DETERMINANTS OF BALLOONING
U.S.D.A. Biological Control of Insects Research Laboratory

Numbers of ballooning spiders were monitored in an annual agricultural planting from June through November 1983, and in the same planting and a native tall grass prairie site 25 km distant from May through December 1984. Seasonal patterns in numbers of aeronauts were statistically indistinguishable between the two years at the agricultural site and between the two sites in 1984, whereas the distributions of families in each such comparison were statistically significantly different. These data suggest that something beyond local population dynamics, such as the weather, determines the pattern. Climatic variables which have been either implicated in promoting the initiation of ballooning or correlated with numbers of aeronauts include wind velocity, temperature, barometric pressure, relative humidity, precipitation, percent cloud cover, and combinations of these (e.g., the "aeronautic index" of Vugts and van Wingerden). Results of multiple regressions of these variables on aeronaut numbers are presented.

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HIEBER, Craig S. 20
THE COCOON AS A DETERRENT TO EGG PREDATORS
Department of Zoology
University of Florida

All spiders deposit their eggs in a silken cocoon, and for many this structure represents the total of maternal care given to the eggs. This, the complexity of many cocoons, and the large and diverse number of insects attacking spider eggs have led to the suggestion that the primary function of the cocoon is egg protection. Here I present data supporting this view for the cocoons of Mecynogea lemniscata and Argiope aurantia (Araneidae).

The suspension lines of both cocoons function to isolate them from generalist predators. They may also interfere with wasp oviposition. The dense covers of both cocoons function primarily against the attacking larvae of dipterans and mantispids, although they may also interfere with some wasps. The flocculent silk layer in some cocoons appears to work primarily against wasps with long ovipositors. However, externally applied layers of silk may also function against wasps and mantispids.

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HODGE, Maggie 21
MACRO- AND MICROHABITAT SELECTION BY AN ORB
WEAVING SPIDER (ARANEAE: ARANEIDAE).
Department of Biological Science
University of Cincinnati

Release experiments were performed to determine whether habitat selection is involved in producing the characteristic distribution pattern of Micrathena gracilis, a forest-dwelling, orb weaving spider. Marked spiders were released into a study area which included a deciduous forest habitat and an adjacent open pine habitat where the spiders were previously never seen. Spiders were consensused daily and their movements recorded. Spiders in the pine habitat spent significantly less time at web sites than did those released into the deciduous forest. All of the spiders released into the pine stand, through successive web relocations, moved into the deciduous area. In contrast, none of the spiders released into the deciduous area were ever observed to enter the pine stand. Differences in air currents, solar radiation and structural properties of the habitats were most strongly associated with the observed macrohabitat choice.

A second study examined the factors determining microhabitat selection. This study used residence time at a particular web site as a measure of microhabitat suitability. Webs of marked spiders were checked hourly from 1000 hrs. through 1700-1900 hrs. each day, for 22 consecutive days. At each hourly check the following information was recorded: feeding behavior, thermoregulatory position, condition of the web and courtship activity. The most significant factors contributing to spider relocation were web destruction and low prey levels.

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KRISTENSEN, Charles P. 22
NEURO-ACTIVE COMPONENTS FROM SPIDER VENOMS.
Spider Pharm, Santa Fe Springs, CA

Even though a very small fraction of spider venoms have been characterized, the venoms are already known to possess diverse and potent neuro-active toxins. These include small to large molecular weight toxins which affect axonal excitation (e.g., from Phoneutria venoms), initiate (Latrodectus) and block (Achaearanea) the release of neurotransmitters or antagonize post-synaptic aminergic receptors (Argiope). Differences are also evident in the symptoms produced by natural or artificial envenomations. For example, paralytic venoms from various araneids produce incomplete, flaccid and reversible paralysis over a wide range of dosages. In contrast, Latrodectus and Achaeranea envenomations induce tense paralysis and have little margin between reversibly paralytic and lethal doses.

The adaptive aspects of these differences are poorly understood, requiring characterization of a wider range of venoms and a better understanding of their use under natural conditions. Yet the available data already suggests the presence of adaptive specializations in venom strategies and functions which may correlate with prey capture techniques and feeding habits.

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LEACH, Robin and EVANS, George 23
A TRULY INTER-TIDAL SPIDER FROM CANADA
Alberta, Canada

An erigonid spider has been found in Canada that is truly inter-tidal. The spider clings to the underside of rocks when the tide is in, and scurries about getting food when the tide is out.

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MADDISON, Wayne P. 24
MARCHENA MINUTA & OTHER JUMPING SPIDERS WITH APPARENT LEG-CARAPACE STRIDULATORY MECHANISM
Museum of Comp Zoology
Harvard University

Marchena minuta is a poorly collected jumping spider dwelling on conifer bark in California, Nevada, Oregon and Washington. Marchena and the South American Helvetia are the only known New World representatives of the subfamily Heliophaninae, which includes the Old World genera Icius, Pseudicius, and Heliophanus. Their placement with the Old world heliophanines is supported by the presence of a bump on the tegulum, a row of "pimples" on the first leg's femur and rugose carapace sides. The latter two structures are present in males, females, and immatures, and are well-placed to function as a leg-carapace stridulatory mechanism. Stridulation has not yet been observed, however. The thiodinine jumping spider Cotinusa has a similar apparatus and has been reported to be a symbiont with the ant Tapinoma; Tapinoma is not known to stridulate.

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PALMER, Jacqueline M., DEVOS, Louis, and HARRISON, F. W. 25
SCANNING AND TRANSMISSION ELECTRON MICROSCOPY OF THE SILK PRODUCTION SYSTEM OF ANTRODIAETUS UNICOLOR (ANTRODIAETIDAE)
Museum of Comp Zoology
Harvard

The burrowing spider Antrodiaetus unicolor is found on vertical drift banks in humid areas in the southeastern U.S. Like many other mygalomorphs, it uses silk in a limited way to line at subterranean burrow, construct a collar-door and on occasion to make egg sacs. It has been previously reported that A. unicolor has a simple silk production system consisting of one spigot type and one silk gland type, each possessing two secretory regions. Scanning electron microscopy shows these spigots to have shafts with numerous "scales" and an enlarged base. Two types of sensilla are present on the spinnerets. Transmission electron microscopy shows that cells of both regions have remarkably similar ultrastructure including basally located nuclei, each with a single nucleuous, numerous large mitochondria, no obvious golgi apparatus, uniformly sized secretory vesicles, no evidence of vesicle fusion and an apical membrane composed of numerous microvilli. The protein produced in the distal region of the gland has a homogeneous consistency while that of the proximal zone is granular or fibrous in appearance.

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PALMER, Jacqueline M. 26
HISTOCHEMISTRY AND ULTRASTRUCTURE OF THE SILK GLANDS OF EUAGRUS CHISOEUS (DIPLURIDAE)
Museum of Comp Zoology
Harvard

Members of the family diplurídae are among the few mygalomorph spiders which produce prey capture webs in addition to silken retreats. Euagrus chisoeus is one such example commonly found in the southwestern U.S. living under rocks in riparian forests. At an earlier A.A.S. meeting I reported preliminary results that Euagrus has only one type of silk gland with two seretory zones. More extensive histochemical studies indicate that there are three regions producing distinct secretory proteins. The distal region secretes an uncharged protein core, the proximal product is highly charged and the middle region exhibits some characteristics of both other areas. Ultrastructural evidence indicates a possible fourth cell type which is distinguished by secretory vesicle size and produce appearance. Differences in intracellular secretory apparatus introduces the possibility of several regulatory mechanisms.

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ROVNER, Jerome S. 27
OXYGEN DIFFUSION INTO SUBMERGED DYSDERID SPIDER NESTS SUPPORTS THE FLOOD-SURVIVAL HYPOTHESIS FOR SUCH SILK USE
Zoological Sciences
Ohio University

Survival of nest-dwelling dysderid spiders during prolonged submergence led me previously to hypothesize that maintenance of a physical gill is one of the functions of such nests. To determine if the bubble trapped in the submerged nest of Dysdera crocata actually does provide such a mechanism, I used closed systems based on two setups, each a check for the other. Decreases in the relative readings of the oxygen meters were greater for water surrounding inhabited nests than for water surrounding the same nests when empty. Oxygen entry into inhabited nests averaged 3 to 3 ul h^{-1}. On the basis of the spider's mass, uptake into each nest averaged 0.038 ul mg^{-1} hr^{-1} at 25°C. Factors resulting from submergence may underlie this relatively low rate of uptake.

Calculation of the amount of oxygen available to D. crocata in the nest's air store shows it to be inadequate for the maximum 10-day period and even for the average 3-day period that these spiders remain in their nests after being submerged. Thus survival during prolonged flooding depends on the nest's maintenance of a trapped bubble, which can serve as a physical gill. This lends support to an hypothesis that flooding, which can occur in any possible habitat, was one of the selective pressures favoring the evolutionary origin of silk in spiders and perhaps in the other major silk-producing arthropods.

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SCHLINGER, Evert I., and HAINES, R. Dennis 28
THE PHENOLOGY OF ACROCERID SPIDER PARASITOIDS IN THE CALIFORNIAN SOUTHERN SIERRAS LOCALITY OF POTWISHA, ALIAS ASH MT. FOREBAY (DIPTERA: ACROCERIDAE)
College of Natural Resources
University of California, Berkeley

The rareness of acrocerid spider parasitoids has until now precluded any significant data on their phenology. During the years 1982-1984 enough weekly/biweekly samples were made by the junior author between April and September to record all California genera and many species in enough abundance to ascertain flight patterns for most species. Associated spider host data will be noted as available.

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SIERWALD, Petra 29
TAXONOMIC AND BEHAVIOURAL STUDIES OF THE GENUS THALASSIUS SIMON 1885 (ARANEAE: PISAURIDAE)
National Museum of Natural History
Smithsonian Institution

Eighty species, described in the genus Thalassius, are revised. In order to define criteria for discrimination between species, the variability of several characters within a population of Thalassius spinosissimus is investigated. Twelve species are regarded as valid; two species are described as new. According to the construction of the copulatory organs in male and female, two species-groups can be recognized. The primodia of the female copulatory organs are described. Females build "mating webs," where copulation takes place. They are "chained" by the males prior to copulation. Parental behaviour agrees with that of other pisaurids, females carrying the cocoons in their chelicera and making nursery webs.

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SIVERTSON, David 30
VISUAL NEURONS IN THE CENTRAL NERVOUS SYSTEM OF A JUMPING SPIDER (SALTICIDAE, GENUS PHIDIPPUS).
California Institute of Technology

Jumping spiders (Salticidae) have large, highly specialized anterior medial eyes. These eyes mediate complex behavior such as detection, identification, and localization of prey, courtship, and general form analysis. I have used computer controlled visual stimulation and data collection while recording from high order visual neurons to study the type of processing that is taking place.

I have found neurons that are selective for position, size, velocity, and distance of visual stimuli. Two related characteristics are of particular importance. The visual receptive field of a neuron is stable with respect to the cephalothorax, and the angular subtense of this field often exceeds the angular extent of the mobile retina. This indicates that these high order visual neurons have integrated the retinal signal with eye movement information. The second property of interest concerns size and depth information. Visual neurons that have been studied in vertebrate and invertebrate systems thus far all have receptive field sizes of constant angular subtense--the size of the receptive field varies geometrically with the distance to the target. I have found monocularly driven neurons with receptive fields that remain constant in absolute physical size as the distance varies. This indicates integration of depth information. Binocular disparity is ruled out by the monocular nature of these fields. This data fits with Land's accommodation hypothesis for the function of the layered, tiered retina.

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STOWE, Mark K. 31
Museum of Comp Zoology
Harvard

Spiders in the two araneid genera Mastophora and Kaira use their ability to mimic moth sex pheromones to attract their male moth prey. While the ecology of the two genera is very similar (e.g., in the temporal patterning of hunting behavior), differences in behavior (e.g., web-spinning courtship, egg-case construction) and histology place the two genera in separate subfamilies and indicate that the two genera evolved their moth-attracting ability independently. Recent progress in chemical identification of the attractants produced by the spiders is discussed.

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STRATTON, Gail E. 32
GEOGRAPHIC DISTRIBUTION AND HABITAT PREFERENCES IN SCHIZOCOSA (ARANEAE: LYCOSIDAE): PATTERNS OF COOCCURRENCE IN THE S. OCREATA SPECIES COMPLEX
Department of Biology
Bradley University

Recent work has shown that the wolf spider species, Schizocosa ocreata, is in reality a species complex with at least four species distinguishable by 2° sexual characteristics and courtship behavior. Preliminary studies have shown that in some populations two ethospecies co-occur, suggesting that courtship behavior may be an isolating mechanism. Laboratory pairings suggest that crossmating does not readily occur between species. The current study was undertaken to further determine the geographic ranges, habitats and degree of co-occurrence of these ethospecies. Collections were made along the Ohio, Illinois, Missouri, Tennessee and Mississippi Rivers and in the Piedmont and N. and S. Carolina. Collections from 10 of 45 localities yielded a mixture of ethospecies; of these, 9 were a mixture of two species and one was a mixture of three species. Therefore, while overlap of the ethospecies within a single collecting locality was not common, it did occur. Thus, both habitat and behavior appear to be premating isolating mechanisms within this species complex.

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UETZ, George W., and CANGIALOSI, Karen 33
SPACING AND TOLERANCE IN COMMUNAL-TERRITORIAL ORB WEAVERS
Department of Biological Sciences
University of Cincinnati

The spatial organization of communal Metepeira spinipes Pickard-Cambridge was investigated in the field and in the laboratory. Spacing of individuals varies with food availability and colony density within populations, and varies between populations as the result of genetic differences in behavior and level of tolerance of conspecifics. Under identical, controlled laboratory conditions, spiders from moist tropical forest sites are spaced closer to each other than spiders from desert grassland populations. Despite this suggestion of a higher degree of tolerance, tropical spiders also show a higher frequency of aggressive interactions among colony members. Between-population differences in the pattern of agonistic behavior explain this apparent paradox.

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WILSON, Graeme, and PEASLEE, Alan 34
DOES A MAD JUMPING SPIDER SEE RED?
School of Optometry
University of Alabama

The study of color vision requires knowledge of a visual system's relative sensitivity to different wavelengths of light. These curves are known as spectral sensitivity functions. To measure the spectral sensitivity of the salticid Maevia inclemens, the two anterior median eyes were observed with a microscope at about 25X magnification. The spider was positioned so that it could observe a monochromatic stimulus whose wavelength was adjustable. If the intensity of the light was above threshold, the spider responded with a fast eye movement when the stimulus was removed. By adjusting both the wavelength and the intensity, it was possible to plot the sensitivity throughout the spider's visible spectrum.

The spectral sensitivity functions from six spiders show that Maevia can respond to light from 320 nm to 700 nm. The maximum sensitivity is near 430 nm (human green). Salticids do not see red light as well as yellow, orange, green, or purple. At threshold, a red light must be a thousand times more intense to produce a response, but salticids are not red blind.

MEMBERSHIP LIST UPDATE

The following changes and additions update the membership list that appeared on pages 8-15 of American Arachnology Number 31.

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