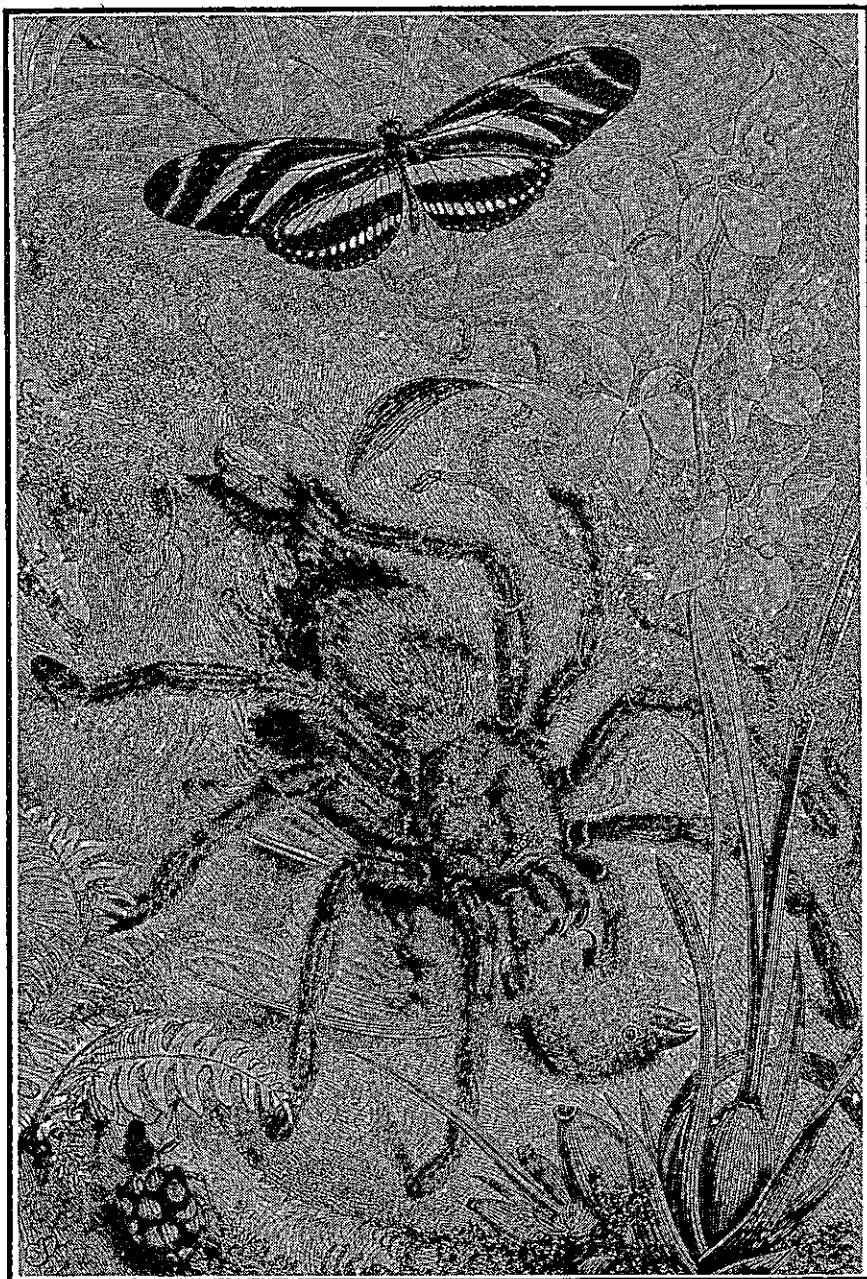


American Arachnology

The Newsletter of the American Arachnological Society



Number 19

May 1979

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AMERICAN ARACHNOLOGY #19

May 1979

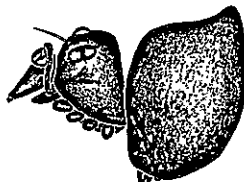
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AMERICAN ARACHNOLOGY is the newsletter of the American Arachnological Society and is sent only to society members. For information on membership, write Dr. Norman Platnick, Membership Secretary, American Arachnological Society, Department of Entomology, 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 Shear, Biology Department, Hampden-Sydney College, Hampden-Sydney, VA 23943, USA.

NEW BOOK



We have seen Willis Gertsch's new edition of *AMERICAN SPIDERS*, and as expected it is superb, with considerable new material, illustrated with excellent photographs by B. J. Kaston, H. K. Wallace, and others. The following announcement was supplied by Van Nostrand Reinhold, the publisher:

American Spiders, Second Edition by Willis J. Gertsch, Ph.D. 288 pages plus index; illustrated; 6 X 9; Van Nostrand Reinhold; \$24.95. Publication date: January, 1979.

Although largely ignored by the general public, the 3,000 species of North American spiders contain some of the strangest and most complex creatures ever to inhabit the continent. This profusely illustrated natural history of the *Araneae* focuses on their numbers and kinds, morphology, life histories, and behavior. It illuminates the great diversity in appearance and habits and many of the striking peculiarities of these solitary, predaceous animals.

Dr. Gertsch provides a brief overview of outstanding spider characteristics and discusses mankind's historical attitudes toward spiders as reflected in literature and mythology. He examines the relationship of spiders to other animals and traces the life history of the spider from its emergence from the egg sac, through courtship, mating, and egg laying. Most species of spiders are greatly dependent on silk spinning and the volume describes the use of silk for locomotion, shelter, mating, protection of eggs, and as a trap for ensnaring prey. Examined in fascinating detail are the bizarre courtship and mating behaviors practiced by spiders, including the ways that males of various species protect themselves from their rapacious mates.

Separate sections are devoted to each of the major groups of spiders -- the mygalomorphs, the cribellate spiders, the aerial web spinners, and the hunting spiders. An overview of the evolution of these ancient animals describes the enormous changes that have occurred in different species and how and why most modern spiders turned to silk as a means of capturing prey and moving through the air. Also examined are the distribution of spiders over the U.S. and Canada, their role in maintaining the ecological balance, and their medical importance to man. A listing of spider families and their higher systematic divisions, a glossary of terms referring to spiders, and an extensive bibliography round out the volume's usefulness as a comprehensive sourcebook.

With its numerous color and black and white illustrations and its abundance of fascinating information, *AMERICAN SPIDERS* will be welcomed by entomologists, araneologists, and everyone interested in natural history. It reflects the large body of current information concerning spiders and will act as a stimulant to unearthing the many details that are still unknown.

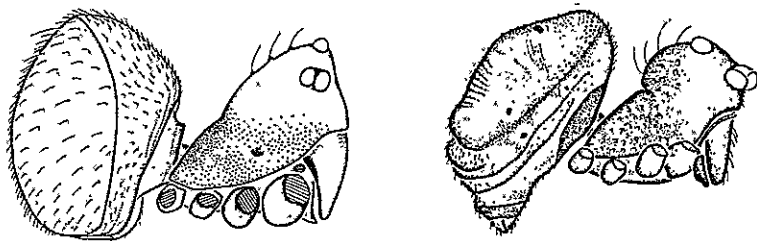
Willis J. Gertsch, Ph.D., is currently Curator Emeritus of the American Museum of Natural History in New York where he served as Curator in the Department of Insects and Spiders for more than twenty-five years. He is the author of numerous books, articles, and monographs dealing with the biology and systematics of spiders and their relatives. He is a Fellow of the New York Zoological Society and a member of the New York Entomological Society, the Society of Systematic Zoology, the American Arachnological Society, and other professional organizations.

NEW RESEARCH LITERATURE

As a regular feature in forthcoming issues of AMERICAN ARACHNOLOGY, the editor intends to list the titles of new reprints that have come across his desk from arachnological researchers in all parts of the world. Reprints of these articles may be obtained from their authors.

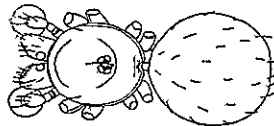
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- Dondale, C. D., and J. H. Redner. 1978. Revision of the Nearctic wolf spider genus Schizocosa (Araneida: Lycosidae). *Can. Ent.* 110:143-181.
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- _____. 1978a. Male mating strategies of dictynid spiders with differing types of social organization. *Symp. zool. Soc. London* 42:79-88.
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- LeSar, G. D., and J. D. Unzicker. 1978. Life history, habits, and prey preferences of Tetragnatha laboriosa (Araneae: Tetragnathidae). *Environ. Ent.* 7:879-884.
- Martens, J. 1978. Opiliones aus dem Nepal-Himalaya. IV. Biantidae. *Senck. biol.* 58:347-414.
- Minch, E. W. 1979. Annual activity patterns in the tarantula, Aphonopelma chalcodes Chamberlin. *Nov. Arthrop.* 1:1-34.
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- Platnick, N. I., and M. U. Shadab. 1978a. A review of the spider genus Mysmenopsis (Araneae, Mysmenidae). *Amer. Mus. Nov.* 2661: 22 pp.
- _____. 1978b. A review of the spider genus Anapis (Araneae, Anapidae), with a dual cladistic analysis. *Amer. Mus. Nov.* 2663: 23 pp.

- Flatrick, N. I., and M. U. Shadab. 1979a. A revision of the Neotropical spider genus Echemoides, with notes on other echemines. Amer. Mus. Nov. 2669: 22 pp.
- _____. 1979b. A review of the spider genera Anapisona and Pseudanapis (Araneae, Anapidae). Amer. Mus. Nov. 2672: 20 pp.
- Rambla, M. 1978. Systematics of laniatorid opiliones. Symp. zool. Soc. London 42:303-307.
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- Soares, H. E. M. 1978. Opera opilologica varia. XIV. Opiliones, Phalangodidae. Pap. Avuls. Zool. (Sao Paulo) 32:141-144.
- Silhavy, V. 1978. Minuides milleri, sp. n., an opilionid with an unusual manner of stridulation (Phalangodidae, Phalangodinae). Acta ent. bohemoslov. 75:58-63.
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WGBH, the Public Television station in Boston, Massachusetts, has announced that it will convert the superb Kullman-Stern film shown at the Exeter meeting into a NOVA program. NOVA is the award-winning series of hour-long shows on science and society. The film has sequences on spider behavior intermingled with startling Scanning Electron Micrographs. The show is now scheduled for the summer of 1979. After showing, many NOVA films are available for rent from Time-Life Films, Inc.

JOURNAL NEWS



Oscar Francke reports that we can expect Vol. 7 of the JOURNAL OF ARACHNOLOGY to begin in March of 1979. This means that the journal is now caught up, and that subsequent volumes will appear in the year for which they were intended. The great debt the society owes to Oscar for this unpaid and often thankless work can never be fully struck from the books. Thanks, Oscar!

Beginning with 1979, AAS members will be able to pay dues to the Arachnological Society of East Asia with their annual AAS billing (as done currently for the BAS and CIDA). Payment of \$20.00 entitles the subscriber to a year of ACTA ARACHNOLOGICA (primarily in English) and ATYPUS (primarily in Japanese).

Franklin Ennik reports that the following papers are still available for purchase from the University of Washington Press, Box 5569, Seattle, Washington 98105:

The Chelifera and Isopoda of Washington and adjacent areas, by Melville H. Hatch.

The spiders of Washington, by Leonard G. Worley (1932).

The Araneida of Washington: Agelenidae and Hahniidae, by Harriet Exline (1938).

Paul's Bookstore, 670 State Street, Madison, Wisconsin 53703, has available for sale those papers of George and Elizabeth Peckham published in the TRANSACTIONS OF THE WISCONSIN ACADEMY OF SCIENCES.

- Evidently the supply of Kaston's "Spiders of Connecticut" has been exhausted, and the state of Connecticut has no plans to reprint. This is one book which is absolutely essential in the library of any North American spider student. One way to get it back into print again at low cost would be to urge Dover Publications, 180 Varick Street, New York, New York 10014, to make a reprint. Dover editions are remarkable for the quality of their printing and paper, and are very inexpensive. Your editor has already written Dover to suggest the reprinting of McCook's "American Spiders and Their Spinning-Work."

We have heard from Peter Ashby, of Oxford Microform Publications, Telford Road, Bicester, Oxford OX6 0UP, England, that his company is issuing an ARACHNOLOGICAL MICROFICHE LIBRARY.

"It has taken over four years to gather together the rare key works selected for inclusion in the collections; many titles are available only in the British Museum and special arrangements have had to be made to film them. As discussed by John Cooke in his introduction, this makes the unique collections immensely valuable. No arachnologist has had access to such a wealth of early literature in one place before! The first libraries and individual naturalists to acquire sets (and part sets) have been very pleased."

"One feature of the economics of micropublishing is that the book titles on microfiches will never again be out-of-print and as the use of fiche readers spreads, so more scientists will be able to have access to hitherto rare material. We are of course anxious to inform arachnologists of the availability of these first collections in our series. Part II will be published over the next two years and include major bibliographies and collected papers of the more important writers on spiders in the late 19th and early 20th centuries."

Interested parties are urged to contact OMP for a list of the titles already published and those planned for the future.

RESEARCHERS CALL FOR SPECIMENS

Dr. Susan Riechert, University of Tennessee, Knoxville, Tennessee, reports that she and Willis Gertsch are working on a revision of the genus Agelenopsis (Agelenidae), and would like to examine all available specimens.

John Kochalka, University of Vermont, Burlington, Vermont, wants information on any spiders collected outside the Himalayas at elevations near or above 5547 meters (18,200')

CURATORIAL NOTES

The following curatorial notes come from John Kochalka, of the University of Vermont:

"Labels written with waterproof India ink on 100% rag thesis paper will sometimes run or "flake off" after a few days in 70% ethanol. Three steps can be taken to prevent this. First: Great care must be taken to keep the paper clean; even the tiniest amount of oil from the fingers will cause the ink to run immediately when you write. Place a clean sheet of paper under the paper on which you are writing the label, and use another clean sheet on which to rest your hand while writing. This is helpful even if you wash your hands every fifteen or twenty minutes, which should also be done. If you touch your face or hair, wash your hands before continuing to write."

"Second: the ink must dry before putting the label in alcohol. Drying time varies from fifteen minutes to a full day, depending on temperature and humidity. ~~Perhaps a drying oven should be used.~~"

"Third: even after all this work, the ink must be fixed by soaking for a few seconds in glacial acetic acid. Rinse twice with large volumes of water and discard the water frequently. Do not get any water in the acid."

"Some professional printers use inferior ink. These labels must also be fixed in acetic acid. The fumes from paradichlorobenzene will cause unfixed, low-quality ink to run."

"Vials with stoppers are a very bad way to send specimens through the mail, because the bubble will shake around and destroy the specimen. The best method for shipping is to use shell vials stoppered with cotton and with no bubble inside. These can be placed inside sealed plastic bags with a small amount of alcohol to prevent drying. Second best is a screwcap vial with no air bubble inside; seal the cap by wrapping it tightly on the outside with a strip of Parafilm "M" which sticks to itself but not to the vial, and thus is not affected by grease and alcohol on the outside of the vial. If genitalia are put in small inner vials, care must be taken to prevent the rest of the specimen from being damaged by the small vial. Small, plastic vials used for insect genitalia do not seem to hurt specimens of spiders."

PEOPLE

Ann Moreton, Powhatan, Virginia, who has operated the Spider Museum for the past several years, is "retiring" from that job to work full time photography and lecturing. She recently wrote Herb Levi:

"I am very happy to report that I have given the Spider Museum away. I was so overworked I couldn't enjoy it any longer. I never had time to make pictures and seldom was able to attend any family events concerning my grandchildren. After I had talked about spiders to sixteen thousand people last year I was absolutely sick of my job. But, of course, now that I am rested I am enthusiastic again."

"This is how it is. The Mathematics & Science Center in Richmond is made up of five counties who own and operate the Center. They produce enrichment programs for sixty thousand children in those counties. All this is free. The museum will still be open to the public and the ones outside the five counties will pay the same admission fees. I am delighted with all these advantages plus my free time to make pictures, travel and lecture. And this is all within my physical ability to perform and enjoy."

The arachnological community is saddened by the death of W. S. Bristowe. He was 76. Mr. Bristowe carried on a tradition much beloved in England, that of the amateur naturalist. He came to his studies of spiders with a fresh perspective unclouded by any academic predilections, and in his many articles brought to light a wealth of fascinating detail on arachnids encountered in his world-wide travels. He will best be remembered for his book THE WORLD OF SPIDERS, first printed in 1958. One of the most gracefully written books on spiders ever published, its personal style and fastidious accuracy started many a young person on the track of these fascinating creatures. In the technical literature, Mr. Bristowe's fine studies of liphistiids and of hypochilomorphs naturally spring to mind; they are notable for their attention to basic fact and for their careful marshalling of evidence in support of the author's conclusions. This newsletter would welcome any brief memoria of Mr. Bristowe from its readers.

Range Extensions

While attending a music festival in Williamsburg, Virginia, this October, your editor observed live specimens of Lyssomanes viridis. A rather cursory literature search suggested this to be an extreme far northern record for this unmistakable species, recorded only from as far north as southern North Carolina. Here in Prince Edward County, Virginia, at Leigh "Mountain," (really just a low hill) an arachnology class took specimens of Antrodiaetus unicolor, an eastward range ~ extension of some 75 miles from a fairly well-established distribution in the Blue Ridge.

How about sending your similar observations of significant range extensions or unusual habitats to AMERICAN ARACHNOLOGY?

PROPOSED CHANGES IN AAS CONSTITUTION

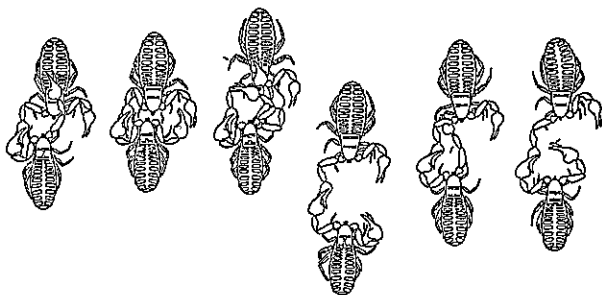
PROPOSED CHANGES:-

1. Constitution, Art. V Officers, Sect. 1, which reads "The elective offices shall consist of President, President-Elect, Secretary, Treasurer, Membership Secretary, and a three member Board of Directors".
DELETE: "Membership Secretary".
2. By-Laws, Art. II Officers, Sect. 1, which reads "The elective offices shall consist of: President, President-Elect, Secretary, Treasurer, Membership Secretary, and a three member Board of Directors".
DELETE: "Membership Secretary".
3. By-Laws, Art. II Officers, Sect. 4.
DELETE: "the Membership Secretary".
4. By-Laws, Art. II Officers, Sect. 9a.
ADD: "The Membership Secretary shall be appointed by the Executive Committee, and shall serve until replaced".
5. By-Laws, Art. II Officers, Sect. 11.
ADD: "Newly elected officers shall take office on the first day of September of the year in which they are elected".
6. By-Laws, Art. IV Dues, Sect. 2, which reads "Annual dues will be \$7.50 per calendar year".
READ: "Annual dues for regular members shall be an amount fixed by the Executive Committee and duly announced to the Membership".
7. By-Laws, Art. IV Dues, Sect. 3, which reads "Institutional subscriptions shall be \$15.00 per calendar year. Journal subscriptions may be exchanged with other professional societies that publish a journal".
READ: "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".
8. By-Laws, Art. IV Dues, Sect. 4, which reads "Student membership will be \$7.50 per calendar year".
READ: "Student membership shall be an amount fixed by the Executive Committee and duly announced to the membership".

ARACHNOQUIZ NO. 2

This issue's ARACHNOQUIZ deals with spiders (or other arachnids) found in very limited habitats, or known only from a small area of the world. If the animal is listed, give the habitat or geographical distribution; if the area is listed, name the animal.

1. 6000' elevation, Mt. Mitchell, North Carolina, in moss.
2. Typhlochactas spp.
3. The only reliable records in the United States for this entire order are from the vicinity of Kerrville, Texas.
4. From soil and litter in a public park in Rochester, New York.
5. Usually this spider family turns up in caves--California, Guatemala, the Pyrenees, etc.
6. A spider genus known in the USA only from the islands off the southern California coast.
7. The only spider family entirely endemic to North America.
8. Fumontana deprehendor
9. Gradungula soerenseni
10. The spider family recorded from the highest elevation.



Bruce Cutler of St. Paul, MN, scored a perfect 10 on the Arachnoquiz from AA #18. We're sending him a mint copy of Bishop's "Phalangida of New York" as a prize. John Kocnalka of Burlington, VT, was a runner-up with a score of eight (John missed numbers 9 and 10). Here are Bruce's answers:

1. Homalonychus sp.
2. Orchestina saltitans
3. Phidippus sp. (about 10 possible)
4. Steatoda borealis
5. Dysdera crocata
6. Uloborus sp.
7. Lycosidae
8. Achaeearanea tepidariorum
9. Antrodiaetus sp. (Atypus sp. rather unlikely)
10. Anyphaena sp.

J. H. EMERTON



J. H. EMERTON

Beginning this issue, we plan to publish biographical notes on pioneer arachnologists. Some of these articles (as the one below) will be reprints, but we hope that members of the AAS will send in any personal recollections or original biographical material they may have on the arachnologists of the past. The next issue of AMERICAN ARACHNOLOGY will carry an article on Eugene Simon.

The short biography of J. H. Emerton below was written by Nathan Banks after Emerton's death in 1931, and was published in the Spring, 1932, issue of PSYCHE (Vol. 39, no. 1). The accompanying caricature is the work of the editor and is based on a photograph which appeared with the original article.

James Henry Emerton was born at Salem, Massachusetts, March 31, 1847, where, as a boy, he attended the local school. He was rather frail and a young helper in his father's drug store, George F. Markoe, interested the boy in outdoor life. They collected plants, insects and shore invertebrates and at the age of fifteen he was frequently visiting the Essex Institute, where he became acquainted with A. S. Packard, F. W. Putnam, John Robinson, Caleb Cooke, and others who later became more or less prominent students of Natural History.

From the first he showed much skill in drawing and made sketches of a great variety of natural objects. He took no lessons in the art, and his later skill in this as well as in modeling was of his own initiative.

In 1868 in the American Naturalist advertiser there appeared the following: "James H. Emerton, Zoölogical and Botanical Draughtsman, Salem, Mass., is prepared to execute drawings on paper or wood for Zoölogical Subjects. Especial attention given to the delineation of Insects. References: Editors of American Naturalist."

Of these early drawings there are many in Packard's "Guide" and forty quarto plates in Watson and Eaton "Botany of the Fortieth Parallel" published in 1871. He was elected to the Boston Society of Natural History in 1870, and later, 1873-74, was an assistant in the Museum. While here he prepared the notes to Hentz's spiders of the United States and the article on cave spiders of Indiana and Kentucky (1875).

He had already decided to study spiders, had collected in over 100 localities in the New England states, and had amassed a collection of more than 300 species.

Early in 1875 he left the Boston Society to spend more than a year in Europe. While there he was enrolled as a student for a short time at the University of Leipzig (October, 1875 to April, 1876) and later (May to July, 1876) at the University of Jena, but apparently he spent much time collecting spiders and becoming acquainted with the arachnologists of Europe, particularly Cambridge, Simon, Koch, Thorell and Ohlert. He had taken to Europe his collection of New England spiders and from Leipzig in December, 1875, wrote an article comparing them with those of the European fauna.

Returning, he again engaged in drawing and prepared many of the colored plates in Eaton's "Ferns of North America" and also many in Packard's "Monograph of the Geometridae."

In 1877, he gave eight lectures on zoölogy and six on spiders at the Summer School of Biology in Salem, and in 1878 delivered another series of six lectures on spiders. He became a curator in the Museum of the Peabody Academy of Science where he spent an hour each day with the visitors and prepared a Guide to the Museum. In 1879 he also gave instruction in the zoölogical laboratory at Salem.

He spent some time at Albany, N. Y., making drawings for Prof. A. Hall, and later (about 1880) went to New Haven, where he was appointed assistant to Professor A. E. Verrill. He made a host of drawings for Verrill, and prepared the famous models of the great squid and octopus now in the Museum of Comparative Zoölogy at Cambridge and in the National Museum at Washington. For these models he was awarded a medal with an elaborately engraved certificate at the International Fisheries Congress in London in 1882. At New Haven in 1884 he married Mary A. Hills, and shortly thereafter moved to Boston, which was henceforth his home. His wife died in 1898.

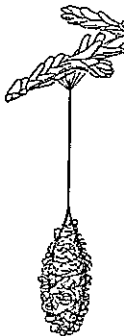
He did much modeling for medical colleges and made drawings for many persons; as Minot's Textbook of Embryology, Verrill's Marine Invertebrates, Scudder's Butterflies of New England, Peckham's papers on spiders, and many for the U. S. Fish Commission. He was active in various natural history organizations and became an important factor in furthering interest in local science.

He began to travel more widely, visiting the West Indies in 1893 with Alexander Agassiz, going with Morse in 1902 to the Southern States, in 1905 to the Californian Mountains, in 1914 to the Canadian Rockies, in 1920 the Hudson Bay Region. On these and numerous shorter trips he industriously collected spiders.

He became much interested in a Federation of New England Natural History Societies, and this he considered as the most useful way of stimulating interest in Natural History. He was the Secretary and principal support of this society until his death.

He was a founder of our Society, for many years an officer, and one of our most regular attendants, often speaking and exhibiting specimens. Some years ago under the auspices of the Club he arranged for two series of public lectures on entomology, giving one lecture himself. He always seemed to be in good health, and collected spiders only a few months before his death, December 5, 1931.

Aside from being a naturalist he was an artist for the sake of art. He painted hundreds of water colors, often depicting the sea, the shore, or ships. For several seasons this was done at Ipswich, and in later years he went regularly in July to Gloucester for painting. He frequently exhibited before art societies, and lived for many years in an artist's studio apartment.



His principal interest and work was on the taxonomy and distribution of the spiders of New England and Canada. His method of sifting leaves, moss and detritus brought to light great numbers of the smaller forms. At first he sent these to the Rev. O. P. Cambridge in England, who described them; later he began his famous series of New England Spiders, publishing the Theridiidae in 1882. The plates in these papers were especially valuable; those in the second part (Epeiridae) containing some of his finest drawings. It is these illustrations that give the characteristic appearance of the parts which have given to Mr. Emerton much of his importance as an arachnologist. Cambridge, in reviewing Hentz's Spiders of the United States (Nature, 1876) refers to Emerton's two plates as follows: "In point of accurate detail and artistic finish these figures are immeasurably in advance of those engraved from Hentz's drawings."

The series on New England spiders was followed by four supplements, two papers on Canadian spiders and numerous smaller articles, describing in all over 350 species, always with useful illustrations. No other writer has so thoroughly figured his species, old as well as new.

In several papers he traced the distribution of certain northern spiders. Several of his early articles dealt with the habits of spiders and, even to the last, he loved to watch each autumn for the flying spiders.

He gave to the Museum of Comparative Zoölogy the first set of the types of his descriptions, his private collection and library he willed to the writer.

His bibliography is as follows:

- The habits of spiders. American Nat., II, 476-481, 1868.
The Ant-lion. American Nat. IV, 1871.
Notes on spiders from caves in Kentucky, Virginia and Indiana.
American Nat., IX, 278-281, 1875.
(Notes and two plates) Hentz Spiders of the United States.
Occ. Pap. Boston Soc. Nat. Hist., II, 1875.
Simon's Les Arachnides de France, Tome I, 1874.
American Nat., IX, 108-109, 1875.
Spiders common to New England and Europe. Psyche I. 129-131, 1876.
A comparison of the spiders of Europe and North America.
Proc. Boston Soc. Nat. His., XIX, 68-72, 1877.
Description of two new spiders from Colorado. Bull. U. S. Geol.
Geog. Surv. Terr., III, 528-529, 1877.
Cocoon making and egg-laying of spiders. Psyche, II, 33-34, 1877.
Oviposition in spiders. Psyche, II, 123-124, 1877.
The structure and habits of spiders. 180 pp., S. E. Cassino, Salem,
1878.
Life on the seashore, or animals of our coast and bays. 143 pp.
Naturalist Handy Series, Salem, 1880.
Breeding habits of spiders. American Nat., XIV, 595, 1880.
(Mating of Xysticus). American Nat., XIV, 595, 1880.
Spider webs. Bull. Essex Institute, IX, 67, 1881.
New England spiders of the family Theridiidae. Trans. Connecticut
Acad. Sci., VI, 1-86, 1882.
The cobwebs of Uloborus. American Journ. Sci., (3) XXV, 203-205, 1883.
New England spiders of the family Epeiridae. Trans. Connecticut Acad.,
VI, 295-342, 1884.
New England spiders of the family Lycosidae. Trans. Connecticut Acad.
Sci., VI, 481-505, 1885.
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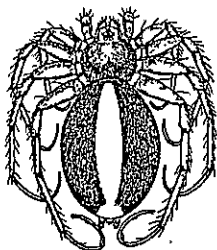
GRADUATE STUDY

The Rob and Bessie Welder Wildlife Foundation of Sinton, Texas, is making available an outstanding opportunity to a well-qualified graduate student. The Foundation wishes to have an exhaustive survey made of its arachnid fauna (exclusive of the acarines). In conjunction with this work the Research Assistant would pursue related research in some area of arachnology. Preferably, the research problem would make use, at least in part, of the data desired by the Foundation. A mere faunal check-list would not suffice as a problem leading to a graduate degree.

The 12-month stipend is \$5100.00 with additional allowance for travel and supplies. Housing is available at the Foundation at no cost. The Foundation would expect approximately one year's residency for one seeking the Ph.D. A doctoral candidate is preferred. The graduate degree would be granted through the Department of Biological Sciences, Texas Tech University, Lubbock, Texas, where other requirements such as formal course work would be satisfied. Foundation support would continue during the student's residency at Texas Tech.

Those interested should prepare a C.V. and a statement of research interests, which should include suggestions as to specific problems that might be pursued leading toward thesis or dissertation. Address your correspondence to the Principal Investigator and Major Professor below:

Robert W. Mitchell
Department of Biological Sciences
Texas Tech University
Lubbock, Texas 79409



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E. V. HERRICK

American Arachnology
Department of Biology
Hampden-Sydney College
Hampden-Sydney, Virginia 23943

Harper, C. A.
Rechtel Corp
Box 3985
P. O.
San Francisco, CA 94119

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