

American Arachnology

The Newsletter of the American Arachnological Society



June 1982

Number 24

25

In this issue of AMERICAN ARACHNOLOGY:

New Records.....	2
ICZN Notification.....	2
Notes from People.....	3
Arachnological Education.....	4
Books: News and Needs.....	5
A Giant Fossil Spider.....	6
Last Word on Araneism.....	7

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, William A. Shear, Biology Department, Hampden-Sydney College, Hampden-Sydney, VA 23943, USA.

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

* * * * *

This issue of AMERICAN ARACHNOLOGY is a slender one. Over the past seven months, little material suitable for the newsletter has come to the editor unbidden. Since #18, we find that nearly half the material published in AMERICAN ARACHNOLOGY has been directly generated by the editor, either by reprinting older, historical articles, or by publishing abstracts of papers and lists of recent publications (this latter practice drew complaints of duplication of the annual CIDA bibliographies).

A newsletter can live up to its name only if it truly carries news--even 6-month-old news. Won't you please make an effort to send in reports of your activities and your thoughts about matters of interest to arachnologists? Please remember that AMERICAN ARACHNOLOGY is not the appropriate place for original research papers, but is a good outlet for speculations, anecdotes and news. Let's hear from you!

New Records

James COKENDOLPHER reports from Lubbock as follows.

"Until now Selenops has only been reported in Texas on two occasions. A male and three female S. actophilus Chamberlin were taken by Reagan and Fury during June 1948, near Valentine, Presidio County (Muma, 1953. Amer. Mus. Novitates, #1619:1-55). Another specimen, too immature for species identification, was taken by Reddell and Russell on 1 January 1963 in Marsall' Bat Cave, 20 km. S., 6.3 km. E. Pandale, Val Verde County (Reddell, ed., 1964. Texas Speleological Survey, 1(7):1-53, Dittoed)."

"Among material at Midwestern State University are several specimens which extend the range in Texas. Kaspar, Smith, Coken-dolpher, and Nipper took six Selenops 6.4 km. W. Lajitas, Presidio County on 28 March 1975. Cokendolpher captured an immature 1.3 km. N., 5.5 km. E. Terlingua, Brewster County on 29 March 1975 and another on 15 March 1976, 16.9 km. N., 9.7 km. W. Fort Davis, Jeff Davis County. On the basis of a penultimate male the Lajitas specimens can be placed in the debilis species group which includes S. actophilus. An additional male and immature of S. actophilus are in the collection at Texas Tech University. They were collected by Mollhagen 30 km. N. Comstock, Val Verde County on 14 April 1973."

"Muma (ibid.) and Comstock (1975). The Spider Book, revised and edited by Gertsch, New York, Comstock Publ. Comp., Inc., pp. 1-729 report most species of Selenops are secretive and emerge from narrow cracks and crevices only at night to hunt for prey. All the specimens at MSU were obtained by turning over large flat rocks along banks of streams and small pools during daytime."

Willis GERTSCH and Fin RUSSELL continue to monitor new records of Loxosceles. Willis reports:

"During the past few months I have had a rash of Loxosceles letters with new records of our wandering reclusa, with two records from Maine, one male in New York City, and one from Toronto, Ontario. I have verified the first two localities on the basis of material but accept Dondale's record for Canada. The revision of Loxosceles from North America, Central America, and the West Indies is in the final typing stages."

ICZN Notification

The International Commission on Zoological Nomenclature has given six month's notice (as of March 12, 1982) of the possible use of its plenary powers in the following cases, and has invited comments from interested zoologists. Correspondence should be addressed to R. V. MELVILLE, Secretary, c/o British Museum (Natural History), Cromwell Road, London SW75BD, England.

Case No. 2169: Proposed conservation of the generic name Phrynus Lamarck, 1801 (Arachnida, Amblypygi).

Case No. 2355: Proposed conservation of the name Attus otiosus Hentz, 1846 (Arachnida, Araneae, Salticidae).

Notes from People

From Chris STARR: "Starting in October 1981, I'm associate prof in Entomology at the Visayas State College of Agriculture, Baybay, Leyte 7127, Philippines, where I teach Systematics, Beekeeping and various other bug subjects. I have yet to meet the Giant Forest Scorpion of the Philippines, but this is a prime desideratum. This is not New Guinea, but it is nonetheless quite a good place for spiders. I can find 4 species of my beloved gasteracanthines within 1 km of where I live. The salticid fauna is extensive; at first it struck as being almost completely drab and medium-sized, but exceptions are now appearing. Occasionally I've been careless and gotten a faceful of Nephila. So far just 1 lyssomanid. I expect to be here for a few years."

From Terry SEDGWICK: "The trip to Malaysia was very interesting from many points of view. I was disappointed with my general collecting, primarily because I did less night collecting than usual. I have finally done a basic sort of the litter material which is fairly interesting. From Thailand to Malaysia east and west (west to the peninsula and east to Borneo), I found a basic similarity in the groups in the litter. My impression is that the predominant families tend to occur in the same proportion over quite a wide geographical area. What I believe are Ochyroceratids were most common in numbers. I will have to go through again to be clearer on just what I have. I also collected in different habitats 100 yards from each other as well as several miles from each other. It will be interesting to see if the species are the same for different plots within a given locality."

"I also had luck with Liphistius, and am trying to raise what I brought back alive. I have been corresponding with Fred COYLE, who is doing chromosomal and histological work with some of the material, for which he needs freshly killed specimens. Perhaps through his studies and a thorough review of existing species there will be enough information to pinpoint better the relationship between Liphistius and other groups. I also believe there are a number more undescribed species in the family (I seem to have turned up two new ones, plus a previously undescribed male). I am presently recording feeding, molting, etc., and keeping the molts."

"One interesting ramification is that I am finding two species of mites on the specimens I have alive, one of which I have traced to meal worms I am feeding them, the other which was first collected on L. malayanus by BRISTOWE. On checking even further, I found many specimens to be covered with nematodes. One possible scenario is that the nematodes are internal parasites of the spiders, and that the mites feed on them. I will have to work further with mite and nematode people, but it is an interesting problem. I will also be interested to know whether they are species specific, or habitat specific."

"I should also mention, and perhaps for the newsletter, that there is a collection of arachnids in Singapore. I think at one point, it was much more extensive, but as people became interested in moon rock instead of dead bugs, the collection deteriorated badly. What remains is now being cared for well. I spent a few days reorganizing the spiders into families and where possible, genera, but did so without any literature to guide me. Much more work remains to be done, either by people going through Singapore or borrowing specimens. The person to contact there is Miss Yang, Zoological Reference Collection, Zoology Department, National University of Singapore Jurong Campus, Upper Jurong Road, Singapore 2263. She is very helpful. Unfortunately, most of the specimens are large, but some are quite interesting."

Arachnological Education

In our arachnological education survey, 97 forms were returned and the analysis has been carried out, thanks to Bill OWENS, a student at Hampden-Sydney.

Of the respondents, 31 had taken a formal course in Arachnology, and 66 had not. Four had taken a course at the University of Missouri, three at the College of Wooster, and two each at Harvard, Oklahoma State and Midwestern State University (Texas). Sixteen other schools were mentioned just once. All but four of these courses were full Arachnology courses, and only two were taught in summer institutes. Nearly all included lectures and identification laboratories, but only 12 included any assigned reading. Books by B. J. KASTON led the field--12 of the courses (all of them with reading assignments) used HOW TO KNOW THE SPIDERS, and 7 used SPIDERS OF CONNECTICUT. Comstock's SPIDER BOOK was read in 6 courses, and the tomes by GERTSCH, SAVORY, and the paperback by LEVI, LEVI and ZIM were used in four courses each. Named for one class each were LOCKETT and MILLIDGE, FITCH ("Spiders of the Kansas Natural History Reservation"), and LEHTINEN ("Classification of the Cribellate Spiders and Allied Groups").

Twenty-six people reported teaching Arachnology at least once. Six had taught it only once, five teach it at irregular intervals, five more once a year, and ten every two years. Credit given ranged from none to six, with three credits being the most common amount, followed by four credits (ten people who taught arachnology did not respond to this item). The students in the courses were overwhelmingly graduate students or advanced undergraduates; only a small fraction were amateurs. Nine of the courses were offered in a Biology Department, eight in Entomology, seven in Zoology and two were given by museums or field stations.

The following charts summarize the organization and content of the courses:

<u>Format</u>	<u>Av. % of time</u>	<u>Range of %</u>
Lectures	30.3	5-80
Laboratories	49.5	3-90
Discussions	12.6	5-70
Examinations	5.4	5-10

<u>Topic</u>	<u>Av. % of time</u>	<u>Range of %</u>
Anatomy	14.3	5-25
Behavior	13.1	1-25
Taxonomy	32.3	5-90
Biogeography	8.3	5-10
Physiology	17.8	5-30
Development	7.4	7-20
Evolution	11.8	5-20
Ecology	19.4	9-75

<u>Laboratories</u>	<u>Av. % of time</u>	<u>Range of %</u>
Anatomy	15	5-20
Taxonomy	90.5	50-100
Behavior	15	5-30
Physiology	2 "check" marks	
Ecology	26.3	5-75

The identification manual most commonly used in laboratories was Kaston's HOW TO KNOW THE SPIDERS, used in 19 of the courses. SPIDERS AND THEIR KIN was used in four classes, LOCKETT and MILLIDGE in two; one laboratory used no manual, but a collection of monographs.

The average class size was 18, the range five to 25, with 15-20 being the most common number reported. Reports of 70 and 120 students were, I surmise, from larger courses in which Arachnology formed a part of the material.

Thanks to all of you who took the trouble to fill out the forms. I realize that the design was far from ideal, but we have gotten some information about arachnological education in the United States. In the next issue of AMERICAN ARACHNOLOGY, I will report some of the comments you wrote on forms. In the future, I will be asking those of you teaching Arachnology to submit more detailed information, with the idea in mind of publishing a guide to such courses.

Books: News and Needs

From Martin R. KELLOGG (Nature Center, 889 Camino del Sur, Isla Vista CA 93117), we have a request for copies of Savory's BIOLOGY OF SPIDERS and Essig's INSECTS AND MITES OF WESTERN NORTH AMERICA. Please contact Martin with the particulars (price, condition, etc.) of any available copies.

Terry SEDGWICK (318 Caselli St., San Francisco CA 94114) wants to buy a complete set of Bonnet's BIBLIOGRAPHICA ARANEORUM. Write Terry if you have a set to sell or know of one that is available.

The new, revised version of SPIDERS OF CONNECTICUT has been published (see AA #24), and the author, B. J. Kaston, sent us these comments:

"It is obvious that this work is not a revision in the strict sense, but a reprinting of the original 1948 volume, with the addition of a 146 page section at the end containing revisionary material. Naturally, it would have been preferable to have had all the new material mixed throughout the old, but the matter of cost entered in."

"When the Bulletin ran out of print some years ago the officials at the Natural History Survey began to consider a reprinting. It is true, these officials had never had to deal with any Bulletin anywhere near the size of Bulletin 70, which is the largest one of the series. In fact, the bulletins printed since 1948 averaged 83 pages, with half of them containing fewer than 55 pages. With printing costs having risen so, like just about everything else, they were not surprised to learn that the estimated cost for a mere photographic duplication of the 874 pages was more than twice what it had been to set up the original in type and to make the engravings for the 142 plates. To mix the old and the new would entail the printer having to set up the entire 1020 pages of text and plates."

"In a letter to me in November 1978 I was asked, if I would be willing to have the Bulletin reprinted and brought up to date. I went to Connecticut in June 1979 and discussed the situation with one of the Survey officials. There was no question but that a sizeable printing cost would delay the project indefinitely. In order to keep the cost down it was decided to cut the printing order from 3000 to 2000 copies. Also, to put all the revisionary material in one section at the rear, thus requiring the printer to set up only these 146 pages. This represented more or less the same material that had been supplied in the Supplement of 72 pages which appeared in the J. Arachnol. vol. 4 (1977). Even at that the cost came to about three times what had paid for the original Bulletin."

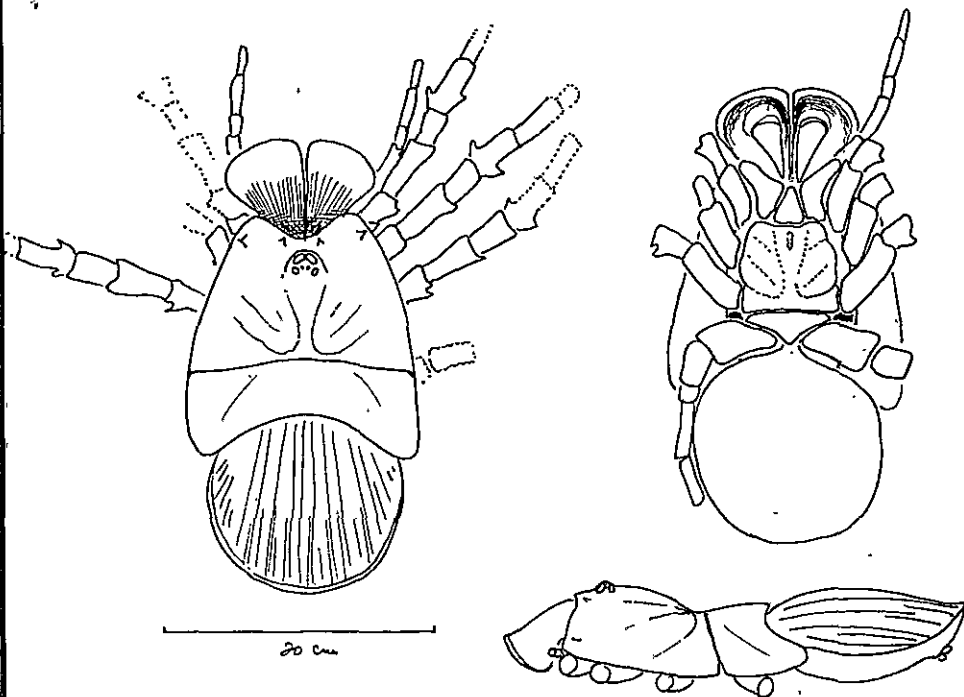
"I am sorry it worked out this way and I apologize to all those users of the volume who may be inconvenienced because of it."

A Giant Fossil Spider

An important recent article has largely been overlooked by arachnologists, and was brought your editor's attention by W. D. Ian ROLFE, of the Hunterian Museum, Glasgow. The article is by Mario A. HÜNICKEN, and appeared in 1981, in the Boletín de la Academia Nacional de Ciencias, Córdoba, Argentina (vol. 53: 317-326, Plates I-VII). Its title is "A giant fossil spider (*Megarachne servinei*) from Bajo de Veliz, Upper Carboniferous, Argentina." In it, HÜNICKEN describes a fossil spider with a body length, including the chelicerae, of about 34 cm (over 14 in.), and a leg span of more than 50 cm (20 in.). The fossil has an unsegmented abdomen, covered by a hard, grooved plate; the spinnerets unluckily do not seem to have been preserved. The heart-shaped cephalothorax appears to be divided in the fossil, but this may be a postmortem injury. Three pairs of closely clustered eyes (and possibly a fourth) are clearly visible. The chelicerae have a unique adaptation, perhaps for digging, in that a shovel-like ridged extension is in the place of the rastellum of a ctenizid. Ventrally, the labium is separate, the sternum is lobed, and definitely appears to be divided into a promesosternite and metasternite. The broad carapace has an extensive doublure.

I have redrawn some of HÜNICKEN's reconstructions and reproduce them here.

This animal's many peculiarities and the fact that it was a contemporary of liphistiomorphs like *Arthrolycosa*, suggests that it might be an entirely separate line of spider evolution. Or, alternatively, as HÜNICKEN implies, it might be part of an ancestral group to the present mygalomorphs. This paper is well worth study by anyone interested in spider evolution.



Reconstruction of *Megarachne servinei* Hünicken
(U. Carboniferous, Argentina; after Hünicken, 1981)

ERRATA

The late appearance of this issue is a shortcoming compounded by the printer's introduction of two substantial errors--if you don't count the very obvious piece of cellophane tape on the masthead.

1. This is Number 25, as stated on the Table of Contents, not Number 24, as stated on the cover.
2. The article on p. 6., "A Giant Fossil Spider," interrupts the article "Books: News and Needs." The concluding paragraphs of the latter are found at the top of p. 7.

For years we have marvelled at the SEM pictures that have illustrated the works of Ernst KULLMANN and members of his research group. Now Herb LEVI tells us that a book by KULLMANN and the journalist Horst STERN is on sale for only DM 29.80 (about \$13.00, originally the book was DM 98.00). The book is entitled AM SEIDENEN FADEN, DIE RÄSTELVOLLE WELT DER SPINNER. It can be purchased by mail from Mail Order Kaiser, Postfach 401209, D-8000 München 40, West Germany. They will send the bill with the order. Herb says "The book is a bargain for all the fancy illustrations!"

In early issues of AMERICAN ARACHNOLOGY, Vince ROTH authored or edited a series of keys to some of the spider genera of North America. We have learned that Vince has compiled these keys, with revisions, and put them together with new ones into a "Handbook for Spider Identification." Originally envisioned to sell for \$7.50, a subsidy by friends of spider study has allowed the price to be reduced to \$5.00. The manual is available by mail from Vince at Portal, AZ 85632. Why not include a dollar or two for postage when you order?

Last Word on Araneism

Our attention has been directed to a note entitled, "Still More on Araneism" in the May, 1981, issue of American Arachnology. In it were detailed the medical history of a man bitten on the wrist by a spider (it was casually brushed off but later identified as a "brown recluse spider"). The victim experienced bizarre clinical manifestations over a 16-month period, with the sequelae of right arm paralysis and total disability. The article concludes with the question: "Could the severe systemic effects have been due to Loxosceles venom?" This, and other similar reports on suspected spider bites that frequently appear in various lay and medical papers and journals, has prompted us to examine the problem of araneism more closely. One of us (F.E.R.) has treated more than 300 cases of araneism in many parts of the world (and frequently in consultation with W.J.G.) so perhaps some comment on our experiences seems warranted.

In our experience, chiefly at the Los Angeles County General Hospital (LAC/USC Medical Center) and more recently at the University of Arizona, extending over a 30-year period, we have found a very consistent and usually diagnostic pattern of clinical manifestations following the bite of a particular spider; that is, when that spider has been brought into the hospital with the patient who has observed the biter, or it has been identified by a competent person. When the spider is not available, or the patient did not see one, or did not feel a bite during the time when the accident was said to have occurred, the syndrome is usually non-diagnostic. In addition, when solpugids, ticks, assassin bugs, and even Jerusalem crickets, grasshoppers and other orthopterons have been brought into the hospital as "spiders," along with a patient bearing a necrotic lesion, one must learn to entertain serious doubts about implicating a spider (particularly Loxosceles sp.) as the etiological culprit.

Of approximately 600 suspected spider bites seen by us, 80% were found to be caused by arthropods other than spiders or by other disease states. Most often implicated were ticks, particularly Ornithodoros coraceus, and the kissing bug Triatoma protracta. Vesicating beetle and lepidopteron blisters, infected flea bites, imbedded tick mouth parts, mite, bedbug and fly bites (sometimes infected), and even hymenopterous stings with unusual sequelae, were seen in this series of cases. Since the patients came to the hospital as spider bite cases, "probably brown recluse" and the fact that the "brown recluse" (L. reclusa) is not found within a thousand miles of the hospital, the diagnosis was held as suspect. It must be admitted, however, that one female Loxosceles reclusa was captured in 1966 with convincing data that it was brought into the area by vehicular commerce. It seems unlikely, however, that this spider could be the cause of the rash of "brown recluse" bites in the Los Angeles area, since it was captured and immediately pickled. Continuous collecting over a 30-year period has failed to uncover any additional specimens. None of the suspected "brown recluse" bites came from several well demarcated areas nearby, where the larger more venomous Loxosceles laeta has been long established, and so far defied extermination. The related brown spider, Loxosceles deserta, is known from a single female from West Los Angeles, and only seven specimens from the large area of Los Angeles County. The simplest answer is that the bites were caused by other animals or can be attributed to diverse disease states.

It is known that other genera of spiders can produce lesions in man. Among the spiders most often implicated in the Los Angeles area are one or more species of the following genera: Aphonopelma, Steatoda, Araneus, Argiope, Heteropoda, Misumenoides, Chiracanthium, Drassodes, Lycosa and Phidippus. This list can be appreciably enlarged, and would show differences for other parts of the country. In fact, we believe that almost 60 spider species in the United States have been implicated in medically significant bites on man. In our opinion, when a spider is responsible for "necrotic arachnidism," as in 55 cases observed by us over a 10-year period, the culprit is probably one of the above. And if the physician persists in relating every case of "necrotic arachnidism" to Loxosceles, it may be another decade before the other culprit(s) can be positively identified. In areas where Loxosceles is not known to exist (or even if it does), we hope that arachnologists will be the voice crying in the wilderness to the medical fraternity: Bring in the spider.

One of the difficulties in spider toxinology is that in order to determine the properties of the venom, one needs large numbers of animals. This is not a difficult problem with some genera, particularly Latrodectus, which can be successfully obtained and reared in the laboratory in large numbers. But with other smaller spiders the task is not so easy; thus, comparatively little biochemistry and pharmacology have been done on most spider venoms, and what has been done has been performed with extracts of the venom glands rather than the venom. These are two different physiopharmacological entities. Even spider-biting experiments in mice and rats have not yielded a consistent group of manifestations. Bites by both Chiracanthium sp. and Steatoda sp. have and have not resulted in necrotic lesions and without a common pool of venom we are not sure wherein is the difficulty. In our own laboratory, we now have sufficient numbers of three genera to do some definitive pharmacology but even then the clinical significance in man of these experiments can be questioned.

Another difficulty too often overlooked is the significance of what the medical profession calls "autopharmacological responses." In reading letters in the press, and in various non-medical journals, we hope it is obvious to most physicians, and almost all pharmacologists, that what is being described is an autopharmacologic reaction. Some of these are known as anaphylactic or anaphylactoid-like responses, sensitivity or allergic reactions, or a host of other names. Fundamentally, these reactions represent a response by the host (human or animal) to the presence of a foreign substance. The body reacts by releasing (or failing to release) certain normal cellular components contained within certain of the body's tissues. These components may have several physiologic functions under normal conditions. However, in response to the presence of a foreign material, usually a protein, the cells producing these substances respond abnormally and release larger than physiological amounts which, in turn produce a deleterious reaction in the host. This reaction may vary from mild anxiety and hives to shock and death. In some cases, a bee sting, rather than displaying mere swelling and redness, may break down at the site of the bite and display a vesicle-pustule-ulcer-eschar, not unlike that seen following Loxosceles bites, or it may produce shock and death. We have also seen such lesions following tick, Triatoma, water bug (Lethocerus and relatives), deer fly bites, and possibly flea bites. In every case so far examined, the patient has subsequently shown to be sensitive to the toxin of the particular arthropod. We have no idea how many cases of "necrotic arachnidism" or "Loxoscelism" can be attributed to this phenomenon.

Another area, possibly unknown to zoologists and known only to a few physicians, is the number of medical diseases which show lesions very similar to those of "loxoscelism" and which are frequently diagnosed as "brown recluse bites." While serving on the staff of the Los Angeles County General Hospital (more recently the Los Angeles County University of Southern California Medical Center) one of us (F.E.R.) had the opportunity to follow a good many so-called "brown recluse" bites with the staff in dermatology. It would not be practical to discuss these cases in detail in this context, but to give the reader an idea of some of the diseases which were admitted with the misdiagnosis of "brown recluse bite" we have listed 11 of the most often final diagnoses:

Erythema chronicum migrans	Purpura Fulminana
Stevens-Johnson Syndrome	Diabetic Ulcer
Lyells Syndrome or Toxic	Bed Sore
Epidermal Necrolysis	Poison Oak
Erythema Nodosum	Poison Ivy
Erythema Multiforme	Chronic Herpes Simplex
Infected Herpes Simplex	Gonococcal arthritic dermatitis

A final important point, overlooked by the public (and some physicians) is the presence of an underlying, subclinical disease state, with cutaneous manifestations, which can be brought to a clinical state (and diagnosis) through what is known as a stress reaction. Again, this is not the proper place to discuss this phenomenon but it has been described in the medical literature and may account for some of the bizarre reactions one sees following a spider or arthropod bite or sting.

If the reader has followed us to this point, he may be wondering if it is humanly possible for anyone to diagnose "araneism." Of course it is, perhaps not simply, but with a fair amount of skill and experience the task is not too difficult, as some physicians and zoologists have demonstrated. The informed biologist or physician should start out with basic facts about spiders, which suggest they are quite unlikely to bite man. All spider bites are accidental happenings of defense involving creatures without predilection for using man as a food or drink donor; on the other hand a host of insects and invertebrates search man out for his blood or sting him in a defensive posture. Perhaps some basic rules for the critical evaluation of claimed spider bites are in order. May we suggest several for a start: