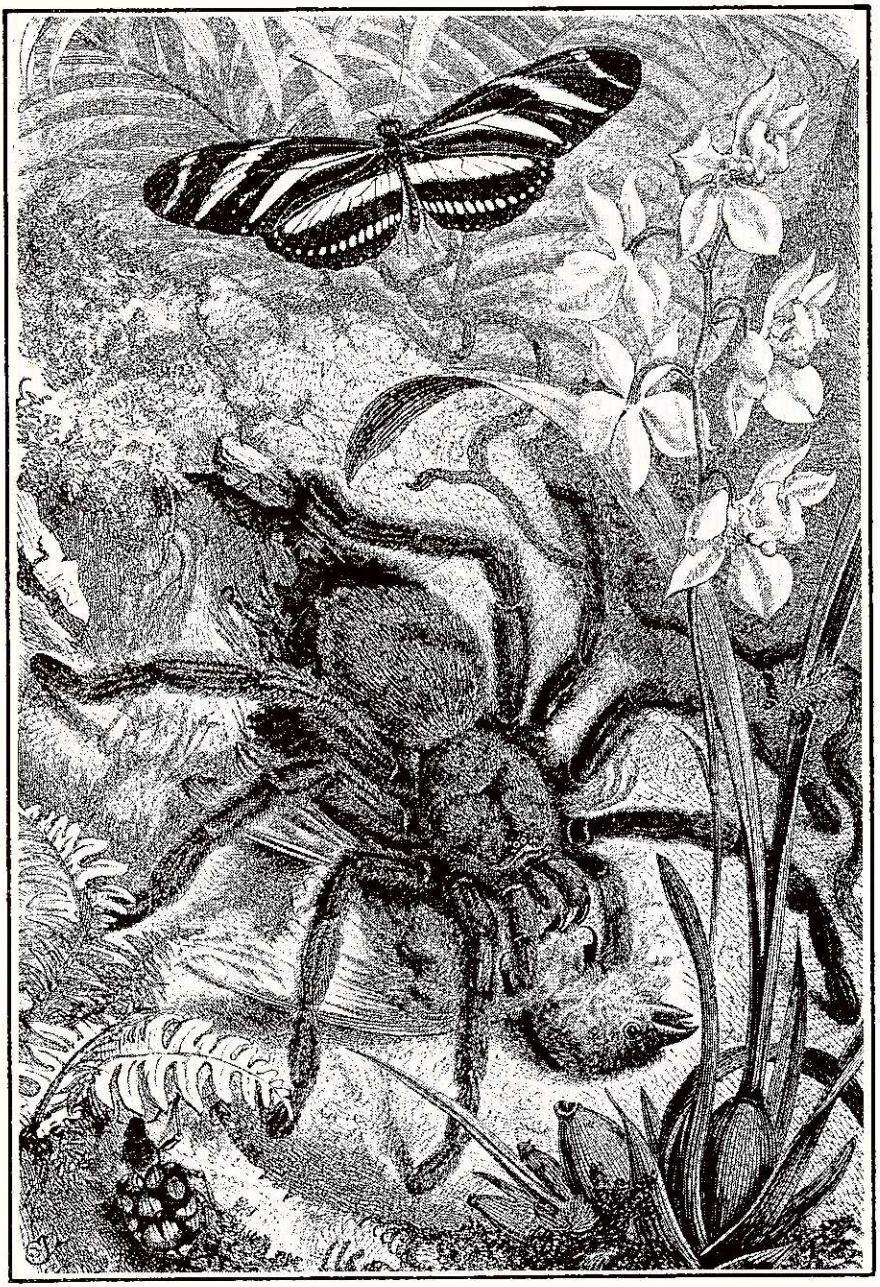
American Arachnology

The Newsletter of the American Arachnological Society



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AMERICAN ARACHNOLOGY #27

June, 1983

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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.

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.

LAST WORD ON 1983 MEETINGS EAST AND WEST

The Western Meeting will be held June 20-22 at Utah State University, Logan Utah, and will be hosted by Eric ZURCHER and Kate DENNE. Two days of papers have been scheduled, as well as the usual social amenities. The meeting promises to be doubly exciting because it will be held in conjunction with the meeting of the Pacific and Rocky Mountain Divisions of AAAS, allowing for interaction with scientists in many other disciplines. Two field trips are contemplated, one to Green Canyon, a research area much used by Utah State graduate students, and the other (an all-day trip) to the Raft River Mountains in northwestern Utah, where participants will revisit collecting sites sutdied fifty years ago by R. V. CHAMBERLIN and Wilton IVIE. If you have not received notice of this meeting and would like to attend, contact Eric ZURCHER at Utah State University, Logan UT.

The Eastern Meeting will be at Ohio University, Athens, Ohio, from June 24th to 27th. Jerry ROVNER will play host. After two days of papers and films, there will be an excursion to the Hocking Hills State Parks. This spectacular (and thoroughly un-Ohio-like) region is marked by deep gorges cut in massive sandstone bluffs by glacial outwash thousands of years ago. An unusual mix of northern and southern flora and fauna occur there. More about this meeting, as well as preregistration forms, can be had from Jerry ROVNER, Zoology Department, Ohio University, Athens OH 45701.

REQUESTS FOR COMMENTS FROM THE ICZN

The International Commission on Zoological Nomenclature is currently considering two cases having implications for arachnid systematics. Case No. 2223 is a request for a ruling to correct homonymy in names of the family-groups based on Myrmecia (Insecta, Hymenoptera) and Myrmecium (Arachnida, Araneae). Case No. 1245 proposes the interpretation of Linyphia tenebricola Wider, 1834 (Arachnida, Araneae) in the sense of Kulczynski, 1887. Comments on these cases should be addressed to R. V. MELVILLE, c/o British Museum (Natural History), London, SW7 5BD.

ACTIVITIES AND NEWS ABOUT PEOPLE

Wayne P. ASPEY, Gail E. STRATTON, and Andrew J. PENNIMAN, Department of Zoology, The Ohio State University, Columbus, presented a workshop on "Spider Behavior and Biology" at the Ohio Historical Society on February 19, 1983, as part of their 1983 series on "Take a Learning Break." The workshop included a slide show on the "Natural History of Spiders" augmented with film loops and sound recordings (courtesy of Dr. Jerome S. ROVNER, Department of Zoology, Ohio University, Athens), a film session of original films, a laboratory devoted to observing spider behavior (prey capture, agonistic behavior, courtship, copulation, and web construction), and a lecture/laboratory on taxonomic characters important for identifying spiders. Approximately 25 participants enrolled in the workshop to learn about spiders. Displays of reprints, journals, and books on spider biology also were available.

Robert RAVEN has written as follows about his post-doctoral fellowship: "I am honoured to accept a Commonwealth Scientific and Industrial Research Organization (C.S.I.R.O.) Post-doctoral award for the years 1983, 1984. I am spending 1983 in the Department of Entomology, American Museum of Natural History, New York, with Norman PLATNICK. I am continuing my research into the cladistic relationships of diplurioid mygalomorph spiders (looking primarily at the generic level and above). The families involved are Dipluridae, Hexathelidae, Mecicobothriidae, Atypidae, Antrodiaetidae, Barychelidae, Paratropididae, Pycnothelidae, Migidae and Ctenizidae - which are all families but the Actinopodidae. I will be looking at the Mesotheleae for out-group comparisons. My interest in some of the more distantly related groups is peripheral (at present) but extant because at least one genus originally placed in one of these families has been transferred into or out of the core group. I look forward to meeting as many arachnologists and entomologists as resources permit. I do expect at least to visit Professor LEVI at Harvard for some time, to visit the Smithsonian Institute and in August to participate at Panama. During 1984, I return to Australia to restore my participation in Australian spiders at the Australian National Insect Collection, Division of Entomology, C.S.I.R.O, Canberra."

RESEARCH REQUESTS--SPECIMENS, LITERATURE, EXPERT HELP

This from John HEISS, University of Arkansas, Department of Entomology, 319 Agriculture Building, Fayetteville, Arkansas 72701. "I am writing an identification manual for the spiders of Arkansas. I would greatly appreciate any records of species collected from Arkansas, or the loan of any unidentified Arkansas material."

"Also, I am still in need of specimens of Calymmaria (Agelenidae), particularly from the Appalachians. They can be found under rocks, bark, in crevices, beneath overhanging rocks, in caves, and are especially common around and behind waterfalls where one is also likely to find Hypochilus. They are sometimes mistaken for linyphiids as they hang inverted from a platform above a basket-shaped web."

Matt GREENSTONE writes: "As a spider ecologist I have long been vaguely aware of the inadequacy of systematic support for arachnology. However, I don't know that anyone of us has done much more than complain about it. My impression of the situation is that older workers on whom we used to rely for identification are no longer able to provide the service, while capable younger people who could help us out are unable to find secure employment as systematists. Those of us who work on a few species or genera may be fortunate enough to find an expert in our particular group. The rest of us bootleg our identifications as best we can, while running th risk of misidentification, or give up in despair as unidentified specimens pile up."

"I am not sure what the solution is, but would like to make an attempt. Toward this end, I am soliciting information to begin to define the dimensions of the problem. Would you please drop me a line and let me know:

1. What is your perception of the availability of taxonomic assistance in North America;

2. How you get your specimens identified now;

3. Whether your research is basic, applied, or mixed;

4. Whether you see needs for research in arachnid systematics beyond specimen identification."

"Please send your replies to:

Matthew H. Greenstone, Research Leader
USDA, ARS, Biological Control of Insects Research Laboratory
P. O. Box A, Research Park
Columbia, MO 65205"

APPLICATIONS OF NEW PHOTOGRAPHIC TECHNOLOGY

Alan CROOKER, Center for Bioengineering, WD-12, University of Washington, Seattle, WA 98195, has submitted the first of a series of articles on special applications of new photographic methods to spider research. The first installment in the series deals with new equipment available:

Arachnologists, entomologists, and others own equipment for close-up and photomacrography of arthropods. Often 35 mm camera equipment is involved because of its portability, ease of use, and the range of accessories available. A typical system might include the camera, lens, bellows or extension tubes, one to three small electronic flash units with associated flash cords and multiple PC converter, and various devices to mount the components such as flash brackets, camera platform, or pistol grip. These systems are usually of high quality and produce fine pictures with relative ease. Currently, however, there are new products on the market which make arthropod photography simpler, faster, and more convenient than ever before.

Cameras. One of the most interesting developments in 35 mm photography is through-the-lens (TTL) flash metering. Sensors/circuits within the camera body measure electronic flash intensity at the film plane during exposure; the camera body automatically terminates flash output when the right amount of light has been reflected from the subject. The result is correct flash exposure with the flash unit mounted on-camera, off-camera, or by bounce or diffuse flash, or throug bellows, extension tubes, and microscopes. Multiple flash exposure is totally automatic. For the arthropod photographer who frequently uses bellows ot extension tubes and electronic flash, the advantage is obvious: no need to make calculations for the exposure compensation required by increased lens-to-film-plane distance and/or the varying glash unit angles and distances employed in multiple flash set-ups. Guide numbers are not even needed. If the camera is used on a dissecting microscope or light microscope, exposure test strips are not the necessity they once were.

TTL flash makes close-up and photomacrography as simple and spontaneous as focusing and pressing the shutter release. Cameras having TTL flash capabilities include: Contax 137, Contax 139 Quartz, Contax RTSII, Nikon F3, Nikon FG, Olympus OM-2 and Pentax LX.

It is necessary to use a dedicated flash unit with TTL flash cameras, i.e., a flash unit made exclusively for use on a particular camera. Other, non-dedicated units will work, but not in the TTL mode. All the camera manufacturers offering TTL flash make small dedicated units of appropriate power for arthropod photography. Some manufacturers also offer ring flashes which will operate in TTL flash mode.

Any aperture of the taking lens can be selected with TTL flash cameras, so the flash range is extended to cover close-up and distant subjects. Because of this freedom of aperture choice, the flash unit can be moved close to the subject to gain maximum depth of field from a small aperture.

Although flash exposure is automatic with TTL flash cameras, there are other exposure-related factors to consider. If one has little experience with close-range flash photography, it is desirable to examine the first few rolls of film closely to determine if flash unit placement has given the desired shadow/modeling effects. If the camera is used on a microscope, it is desirable to check such things as proper alignment of flash unit for even field illumination or instrumentally induced artifacts, such as internal reflection in the microscope. Another consideration invovles subject reflectance and picture composition. Highly reflective subjects, strongly backlit subjects, or small, dark objects against bright background may result in erroneous flash exposure. Fortunately, these conditions are not common in arthropod photography, and if encountered can be compensated for in several ways, the easiest being appropriate adjustment of the film speed dial.

TTL flash is a helpful aid for all arthropod photographers. It is perhaps most useful to those without prior experience. Experienced photographers can calculate exposure or will know the correct f/stop-flash combination from previous experience with their system. However, even the experienced photographer can benefit from TTL flash technology. When working at varying close-up and photomacrographic magnifications with non-TTL flash systems, it is necessary to adjust F/stop, flash placement or both to obtain the desired exposure. When operating at different magnifications with TTL flash, aperture adjustment is not necessary (although aperture can be changed if desired) and changes in flash placement are compensated for by camera/flash automation. This improved speed and ease of operation is helpful in the photography of restless arthropods.

Lenses. One type of lens used for close-up and photomacrography, called a macro lens, has shown a steady evolution in quality and versatility, and a proliferation in the number of focal lengths available. Early macro lenses did not have automatic metering and diaphragm couplings and most were of focal lengths comparable to the normal lens, i.e, 40 to 60 mm. Presently, macro lenses offer automatic operation; focal lengths range from 12.5 to 200 mm. The shorter focal length lenses are used for high magnification and don't focus to infinity. They are used on a bellows rather than the camera since most lack or have only limited focusing ability. Macro lenses of approximately 50 mm and up can be attached to the camera for close-up and photomacrography. Focusing these lenses is accomplished by turning the focus ring; the focus range is usually from infinity to life size, although photography from ½ life size to life-size may require the addition of a short extension tube supplied with the lens and called a "life-size adapter". Magnifications greater than life-size are possible without bellows by using teleconverters or macro-focusing teleconverters. Alternatively, bellows or extension tubes may be used to increase magnification.

At a given magnification, long focal length lenses provide proportionately more working room (distance from the front of the lens to the subject) than their shorter focal length counterparts. The greater working distance is important when dealing with restless arthropods which are not easily approached. For this reason experienced photographers often rely on 150-200 mm lenses for arthropod field photography. As indicated above, macro lenses of this focal length do exist.

Longer focal length macro lenses mounted at the camera without the intervention of extension tubes or bellows can be used for most arthropod field photography. This makes photography faster and more spontaneous. Prior to the development of macro lenses it was necessary to use a conventional, non-macro-focusing lens on a bellows or extension tube to obtain the desired magnification. The ability to focus at infinity is sacrificed with this system because of the lens extension caused by the intervening bellows. One could, however, use a bellows or enlarger lens on a bellows to retain the ability to focus at both infinity and close range. The disadvantage of the latter set-up is that the bellows lens, since it lacks a focusing mount, cannot be used on the camera.

The utility of the macro lens for arthropod photography can be seen by comparing a long focal length macro mounted on the camera with a bellows/lens system. The maximum magnification attainable with a 200 mm lens on a bellows depends on the extension capacibilities of the bellows, but is usually about 0.5X to 0.75X. Most 200 mm macros focus from infinity to 0.5X with no adapters; the unique 200 mm Canon macro focuses from infinity to 1.0X (life size) with no adapter. Therefore, without using adapters or teleconverters, the magnification capability of the macro lens is equal to or greater than the 200 mm bellows/lens system. In addition, speed and convenience are improved.

Macro lenses are very useful for copy work. In contract to a conventional, non-macro-focusing lens, macro lenses are capable of focusing close to the copy for selected area enlargement and are optically corrected for flat-field work. 50 mm is the usual focal length used for copy work since the greater working distance of the longer focal length lenses would require an awkwardly tall copy stand.

Backpacking photographers enjoy macro lenses of various focal lengths because telephoto or normal focal length lens qualities are combined with macro capability.

Flash. Although arthropod photography by daylight is very feasible in some instances and is very easy with cameras that have built in light meters or completely automatic operation, electronic flash is often necessary. The short flash duration is effective in stopping motion and providing the additional light needed for the small apertures required for increased depth of field.

The main development in flash photography is TTL flash (see Camera section). However, automatic electronic flash units (non-TTL) are extremely common and can be used on nearly any camera. These automatic units are made mainly for use at non-close-up distances, but they can work well at magnifications below ½ life-size if used with a long focal length lens. For most close-up and photomacrography, however, electronic flash units must be operated manually. There are several reasons for this: 1. Medium or large apertures (often inappropriate for close-up and photomacrography) are necessary for automatic operation. 2. The flash unit makes no provision for light loss at the film plane due to extension or teleconverters (one can trick the sensor into requiring a greater flash output by placing a gel of appropriate density in fron of the sensor). 3. Minimum flash to subject distance is often 1-2 feet (some units can operate 6 inches or closer). 4. The steep angle the autoflash makes with the subject causes discrepancy in the amount of light reaching the sensor compared to light reaching the lens (macro sensors which read flash exposure at the lens position are available, e.g., Vivitar).

Bellows and extension tubes. Bellows or extension tubes are placed between the camera and lens to increase magnification. Both can be purchased in either manual or automatic models; bellows can be purchased with or without a focusing rail. Several manufacturers offer bellows with swings and shifts of the front standard. The highest evolution of this capability is seen in the Spiratone Bellowsmaster SST. Swings, shifts, tilt, and rise and fall of both front and rear standards are possible. The value of these features is well known to view camera enthusiasts: perspective, focus, and composition control are greatly enhanced. This can be helpful to the arthropod photographer trying to fit subjects into limited depth of field. Use is largely limited to laboratory situations involving less mobile subjects because of the time required to make the necessary adjustments.

Most extension tubes come in a variety of fixed lengths; they must be added together to achieve the desired magnification. However, Olympus offers a unique telescoping extension tube, called the Telescopic Auto Tube, which offers a continuum of extension in one unit.

Flash brackets and camera platforms. Many manufacturers supply various devices to hold or support flash units (such as ball-socket holders, lighting bracke-s, and flash extenders) and cameras (such as pistol grips and gun stocks) in a configuration which is useful in close-up and photomacrography. Specialty manufacturers make equipment specifically for close-up and photomacrography. A list of these specialty manufacturers can be had by writing to Allen CROOKER, Center for Bioengineering, WD-12, University of Washington, Seattle, WA 98195.

Film. The relatively new, extremely fine grain Technical Pan film is recommended for high resolution 35 mm photography.

TWENTY YEARS AFTER: REFLECTIONS ON TEACHING ARACHNOLOGY

By stretching (or contracting) a point somewhat, your editor makes it twenty (really twenty-one) years ago this spring that he was introduced to spiders and myriapods in a course taught by Andrew WEAVER at the College of Wooster. So what more fitting commemoration of this occasion than to teach the same course to undergraduates here at Hampden-Sydney? Some alterations had to be made, of course, Our framework accommodated only a three-credit, not a four-credit course, and Andy's also included insects --we have a separate Entomology course here. But in general the format was the same--lectures on arachnid and myriapod biology, and the laboratory consisting of taxonomy, with a collection required at the end.

It was this requirement that proved the sticking point for all of the half-dozen students. Much to my dismay, they delayed too long, and had to work all day and night just at the end of the course to hand in rather inadequate collections (typically about 20% of the minimum). That is, I was dismayed until I remembered an all-night labelling binge in the basement of Scovel Hall on a warm spring night in 1962!

Collecting trips were great fun then, and I hope that I can communicate some of the excitement Andy got across at a particular find. This year the students seemed particularly impressed with Apheloria virginia, a large, colorful xystodesmid milleped, and with Dolomedes. But who wouldn't be impressed with Dolomedes! And while centipeds (since 1962 having become a specialty of Andy's) were our despair, a new key made out by Andy made centiped enthusiasts of most of my students.

It was fun, as such courses have been over the past two decades when the chance came to teach them, but somehow the hope that a good naturalist will come out of the group has diminished. Still, Fred COYLe and I were in that original class, and Norm PLATNICK was in a course on spiders I taught at Concord College in West Virginia. And there was one guy this year whose identifications were uncannily accurate!

As Thoreau wrote when contemplating science, "How long will it go on, this habit of close observation?" Forever, I hope.

Finally I submit the following bit of doggerel, found posted in the lab on "collection weekend," and authored by a visiting Sweet Briar College student, Lisa FRICANO:

ODE TO ARTHROPODS

Woe! It's a bad time to be a spider
In spring at HSC.
Whether a jumper or a biter
An alcohol bath for thee.

Not web, nor air, nor ground is refuge
From these persistent men.
Requirements insist on a deluge
And a family spread of ten.

Once you're caught the end is near
The thrashing is in vain.
Don't worry, my multi-legged dear,
There's very little pain.

They cap you up and put you away,
A dead and unmourned fellow,
But insult to injury is their way
on to microscope!

How many legs? How many claws?
Are the eyes at equal distance?
They poke and probe at open jaws,
And you make no resistance.

They class and key and reshelf your bod,
Somehow you look the same.
But now you're not just "arthropod,"
They've given you a name!

NEW SPIDER CATALOG TO BE PUBLISHED; SPECIAL PRICE OFFERED

The British Arachnological Society has circulated the following notice to its members:

"Since 1950 there has been a notable increase in the number of scientists engaged in the study of spiders. This has been reflected in the formation of the British and American Arachnological Societies. Many new species have been described and there has been large-scale reclassification of previously known species as information about the order Araneae has grown. There is now no satisfactory catalogue of Araneae, a significant handicap to taxonomists, entomologists and ecologists."

"Publication of Professor Brignoli's catalogue will remedy this problem. Although it is similar in format and arrangement to Roewer's Katalog der Araneae and is also intended to complement Bonnet's Bibliographia Araneorum, this catalogue can be used on its own as an authoritative guide to the classification of Araneae. As well as providing a comprehensive list of all the post-war literature, it also provides details of many older papers which have never previously been listed, even in Zoological Record."

"The Catalogue of the Araneae, which has been extended to cover publications up to 1981, will be an indispensable tool for the determining arachnologist for many years to come. It is a major work of scholarship, and its publication, sponsored by the British Arachnological Society, will be welcomed by the many biologists whose work demands some knowledge of spiders."

"Most of your members are no doubt familiar already with the catalogue of C. F. ROEWER, which was published in part in 1942 in Bremen and finished in Brussels in 1954. ROEWER listed all genera and species, divided in families, for about 70 per cent of the families described from 1758 to 1940, with the remainder described until 1952-3. In the last 25 years, however, so much has been published throughout the world on the taxonomy of spiders that ROEWER's work is now of little use in regard to most families of spiders. The number of families has greatly changed (from 64 to about 90) and so many genera have been shifted from one family to another that it is extremely difficult to use many recent papers. More revisions have appeared since 1960 than in the whole period 1758-1960."

"Professor BRIGNOLI's new catalogue lists all species described since 1940-41 for the families covered in ROEWER's volume 1, and all species described since 1952-53 for the families described in ROEWER's volume 2. It can also be used independetnly or in conjunction with BONNET's Bibliographia Araneorum. In BRIGNOLI's catalogue the genera have been divided into families, according to the newest interpretations, and for each new family or genus the relevant bibliographical data are given. Included are all relevant references--descriptions, redescriptions, important records, etc. To facilitate its use with BONNET's catalogue, Professor BRIGNOLI lists all genera for each family. Those which are valid but in which no species have been described are simply listed under the heading "no entries," while those which have fallen into synonymy are listed separately. For both the "old" species listed by ROEWER and for the "new" species not listed by ROEWER, references are given to the appers in which they have been put in synonymy. (Since ROEWER did not publish these references, it has previously been difficult to ascertain when--and why--a certain genus or species was put in synonymy)."

"The genera and species which have been transferred from one family to another (or from one genus to another) are listed under both the old classifications and the new--an arrangement made particularly desirable because of the very large number of these cases. The only exception to this set-up is that it has not been possible to list the "old" species which have been put in synonymy or transferred to other genera or families; and this is a problem only for a few families in which provisional work has been done (Linyphiidae, Theridiidae, etc.)."

"Besides providing a comprehensive account of all the post-war literature, Professor BRIGNOLI's work provides an analysis of many older papers which were omitted by ROEWER. Deserving special mention among these are many Japanese papers that appeared between 1910 and 1943, most of which have not even been listed in the Zoological Record."

"Like ROEWER's catalogue, the BRIGNOLI book is designed primarily for the professional determining arachnologist. But it should also be of help even to beginners (with or without ROEWER's in hand) since it will give them the names of all families and all valid genera and also help to orient them in the difficult recent literature. The catalogue will also be useful for putting in order the collections of museums."

"Paolo BRIGNOLI is Professor of Zoology at the University of Aquila and is the author of 138 papers on taxonomy, morphology, phylogeny, and bio-geography of the orders Araneae, Opilionida, Schizomida, Palpigrada, Ricinulei and Pantopoda. During his career Dr. BRIGNOLI has described a dozen new genera and about 250 new species of spiders, Schizomida and Ricinulei from most parts of the world. A large part of his papers (more than 40) are on cave spiders, and he has published catalogues on the cave spiders of Italy and Greece. Of general relevance are his discovery of the spermathecae in the Ricinulei, the first use of the spermathecae in the taxonomy of the Schizomida. He has specially contributed to the taxonomy and phylogeny of the Haplogynae, and added much to the knowledge of the morphology of the female internal genitalia of this group. Professor BRIGNOLI has done much field-work throughout the world in such countries as Turkey, Lebanon, Iran, Indonesia, Thailand, Morocco, Algeria, Tunisia, Sudan, Ghana, Ethiopia, Kenya, Tanzania, and Mexico."

"The published price of the Catalogue (now 784pp in extent) will be £65.00, but copies are available to members of the British Arachnological Society at a price of £42.50 ($64.00 in North America) plus a handling charge of £3.50/$6.00 per order. Copies can be ordered from Manchester University Press, 51 Washington St., Dover, New Hampshire 03820, USA. This offer closes on 1 July 1983.'

ARACHNOLOGY IN THE PHILIPPINES

By Chris Starr, Department of Plant Protection, Visayas State College of Agriculture, ViSCA, Leyte 7127-A, PHILIPPINES

It is plain from the letters I've been getting from arachnologists that the Philippine fauna is of some considerable interest to many of you, as it certainly is to me. What I will do here is to say a few things about Philippine arachnids, the present state of Philippine arachnology, the collection which we are in the process of building at my institution, and lastly some comments about how you and we might work together a little better.

The Philippines are a fringing archipelago of southeast Asia, with a biota which is fairly harmonically oriental. In the modern conception, the Philippines proper (excluding Palawan and associated smaller islands, which have greater affinities with Borneo than with the rest of the Philippines) are placed within Wallacea, the transition zone between the Oriental and Australian Regions. They are at the northeastern end of Wallacea, though, outside of any normal migration route between the two regions, so that it is far from being an outstanding transition area. The Australian component is not conspicuous.

Table 1 will permit a quick review of our known arachnid fauna. The data are taken from CORPUZ-RAROS (in press). The first thing we can note is that the total number of known species is quite low. We have all been told many times that tropical regions are rich in species but have been much less explored, and we see a good example here. The British Isles, with a land area only slightly greater than that of the Philippines (about 314,000 km^2, against about 298,000) has 612 known species of spiders as of 1974, three times what we know from the Philippines. This contrast is certainly not due to poverty of the Philippine fauna, as you will quickly find out when you visit. Of each of the major orders, only the Acarina have received what we might call a modern amount of attention in the Philippines. Our knowledge of the others is strikingly under-developed. I'll return to the question of the present state of Philippine arachnology below, but first a few comments on some of the orders.

Table 1. Numbers of known Philippine species in the orders of arachnids.

Orders	Numbers of species	Comments
Scorpiones	10	Scorpionidae, Buthidae
Uropygida	7	Thelyphonidae
Amblypigyda	2	Sarax brachydactylus, Tarantula palmata
Schizomida	1	Trithyreus luzonicus
Pseudoscorpionida	35	
Solpugida	0	
Palpigradida	0	
Phalangida	80	
Ricinuleida	0	
Araneida	195	See Table 2
Acarina	530	
Total	960	

It seems unlikely to me that the small number of known scorpion species is due to a lack of attention. True, there has been no special attention to collecting Philippine scorpions, but they tend to be conspicuous and are not rare in student collections. I suspect that the Philippine fauna consists of a small number of common species. This is consistent with the fact that these are, after all, islands, and that the natural lowland vegetation is almost entirely humid forest. On Palawan, much of which is quite arid by Philippine standards, I found many more scorpions in a month than I have found in humid areas over more than a year.

ROWLAND (1973) considers the Philippine uropygids to have been only scantily and spottily collected and his revision therefore quite incomplete. I don't doubt that more species are to be found, but the uropygids I have collected here (and others I have seen which ROWLAND must not have seen) fit in well with his treatment. By that I mean that the characterization of the Philippine fauna which one would make from his treatment is not likely to be changed very much by further collecting. I have not yet seen a specimen which did not seem to be from one of the five genera he treats.

Amblypygids are a prominent feature of the cave fauna in the Visayan region, and I don't believe I have failed to find them in any large cave. They all look alike so far, and I assume I've been getting Sarax.

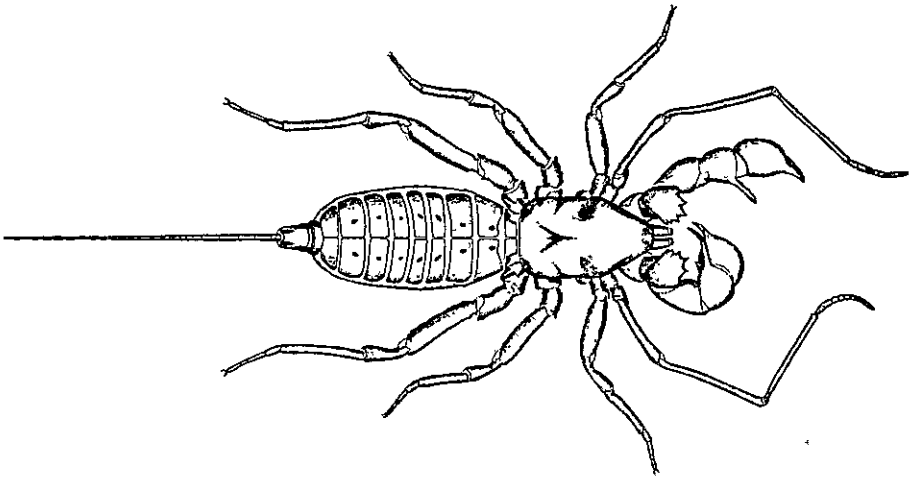
I must mention that I just recently saw my first live schizomid, definitely a large thrill. Now the only order missing from my life list (I don't mean to imply that I actually keep such a thing) is Palpigradida. The specimen I found, apparently a Trithyreus, was in mud cracks under a rock in an open area.

Table 2. Spider families recorded from the Philippines, with the number of recorded species in each. Taken from a list in preparation by CAUAYAN & CORPUZ-RAROS.

Family	Numbers of Species
Dipluridae	1
Theraphosidae	7
Oonopidae	10
Dysderidae	1
Scytodidae	1
Ochyroceratidae	3
Pholcidae	6
Hersiliidae	1
Zodariidae	5
Theridiidae	8
Palpimanidae	1
Linyphiidae	1
"Erigonidae"	3
Araneidae	33
Tetragnathidae	12
Mimetidae	1
Hahniidae	1
Pisauridae	2
Lycosidae	6
Oxyopidae	2
Prodidimidae	1
Clubionidae	10
Ctenidae	1
Gnaphosidae	1
Eusparassidae	4
Thomisidae	11
Salticidae	49
Lyssomanidae	1

Filistatidae	2
Dictynidae	1
Uloboridae	6
Amaurobiidae	1
Agelenidae	1
Heteropodidae	1
Total	195

There can be little doubt that many unknown and unexpected spiders remain to be discovered here. This is a view I have heard from several of you, and after almost 18 months of scudding about the woods on various islands I am convinced that it is correct. Table 2 lists the families of spiders recorded from the Philippines and the number of species recorded from each. I use a splitting classification, in order to convey more information. Because of the considerable interest in orb-weavers and jumping spiders, I have listed the recorded genera for these groups. The table is taken, largely uncritically, from information in CAUYAN & CORPUZ-RAROS (In prep.) and is restricted to published reports. What you will immediately notice is that many of the numbers are much too low, in many cases blatantly so. Maybe there really is just one species of Mimetidae in the Philippines and one of Hahniidae, but we can be sure there are several times as many erigonids, theridiids and lycosids as presently indicated. I know there are more species of pisaurids, oxyopids, agelenids and heteropodids, because I have collected more than that many. I certainly hope there are more hersillids; the one species I have found fairly commonly on tree trunks in Palawan has to be among my favorite spiders. I haven't collected any families not included in this list.



Glyptogluteus augustus Rowland,
a uropygid from the Philippines.
Drawing by Mark ROWLAND.

Philippine Arachnology is certainly undeveloped, but I would not say it is outstandingly underdeveloped. Most likely there is much less Arachnology going on in most other parts of southeast Asia. And I am not convinced that even relatively advanced India is not behind the Philippines in this respect. I cannot think of a single contribution to Arachnology made inside the Philippines during the Spanish Period (1564-1898), and it would not be much of an exaggeration to say that the Spaniards in the Philippines did no science. The American Period (1898-1946) was quite different in this regard. Politically, it was an exchange of imperialisms, but a feature of the new imperialism was an enthusiasm for education and a promotion of natural history. Progress in the knowledge of the Philippine biota was therefore quite marked during the American Period. Regrettably, most of the work was by Americans or by other foreigners who worked on what Americans here had collected, so that with the withdrawal of the colonial administration in 1946, the Philippines were left without a corps of experienced field- and museum-biologists. This is by no means an exclusively Philippines phenomenon. It is commonly observed that basic biology, including systematics, in tropical countries loses momentum and quality after the colonial administration is replaced by a native one, and the recovery is not rapid. In the Philippines the recovery has proceeded somewhat better than in many other countries, though by the standards of industrialized countries there may appear to be little difference. I would say that the outstanding contributor to knowledge of Philippine arachnids in the Spanish Period was the phenomenal Eugene SIMON, during the American Period it was Nathan BANKS.

I'll describe present day Philippine Arachnology in the most direct way, by naming each of the people involved and saying something about the activities of each.

1. The only full-time professional arachnologist in the Philippines is the acarologist Dr. Leonila A. CORPUZ-RAROS of the Visayas State College of Agriculture (ViSCA). She has recently catalogued the mites of the Philippines (CORPUZ-RAROS, in press), and it is because of her more than any other that these are the best known order of Philippine arachnids. She has also served to advise and direct a number of students who have shown an interest in arachnids.

2. Dr. Romeo S. RAROS of ViSCA is an entomologist and forest ecologist who is interested in spiders as ecological indicators. He has done a certain amount of work with lycosids.

3. Mr. Alberto T. BARRION of the International Rice Research Institute (IRRI) at Los Baños, Laguna, is a spider-enthusiast who manages to get paid for it by treating them as important predators in rice fields. His MS thesis, part of which has has now been published (BARRION & LITSINGER 1981), has exactly this as its stated justification. It is the largest single contribution to date to the knowledge of Philippine spiders. It consists of records and keys of 51 species from rice fields throughout the country, with description of the life stages of some species. Bert's spider work is somewhat constrained by the fact that he works for an agricultural research institute and doesn't have the kind of freedom of research we associate with academic institutions. So far it has worked out well, though.

4. Ms. Adelina A. BARRION works at the Department of Life Sciences of the University of the Philippines main campus at Los Baños (UPLB). She is under somewhat greater constraint in the amount of attention she can devote to arachnids and is therefore effectively an amateur. Lina's principal interest is in spiders, in which she collaborates with Bert BARRION, her husband. She has begun some new investigations in the biology of gasteracanthines.

5. Ms. Rose Marie T. ROSARIO did her MSc thesis on the taxonomy of hypoaspidine mites and expects to continue in acarology. She is on staff at ViSCA, presently on study leave as a doctoral student at Georgia.

6. I, Dr. Christopher K. STARR, have been an amateur arachnologist for 10 years, with interests mainly in the taxonomy and behavior of spiders and scorpions. Within what I see around me here, I find my attention most drawn to two groups of spiders: the web-commensals of araneids (Argyrodes spp.) and the ant- and weevil-mimicking salticids. Argyrodes are common in the webs of some araneids, such as Nephila and Gasteracantha, and I am interested in their relationships with the hosts. Ant-mimicking salticids I find quite often here, and in a great many cases they show such a resemblance and spatial affinity for a certain ant species that there can be little question that it is in fact the model. This model-specificity is even more apparent in the weevil-mimics, but so far these have been very rare, and for most species I have only a single specimen. I have greater freedom of reserach than some of the others and have made some beginning observations on these two groups of spiders. I haven't yet decided how much attention to give them, though, as this would have to be taken away from my main work on the behavior and evolution of social insects. My principal con-ribution to Philippine Arachnology will in any event be as Curator of ViSCA's Biological Museum. Of the people mentioned here, I am the only foreigner and the only one who does not plan to stay.

The Biological Museum is part of the Department of Plant Protection, which handles the courses in Biology, Zoology and Entomology. Although this is an agricultural school, the administration and our department have an enlightened commitment to arthropod taxonomy and to building a serious research museum. The Museum is only two years old, having grown out of the zoological collections which the department has kept over the years, and with the expansion of the college as a whole in recent years came the expansion and transformation of these collections into something very different. Our present mandate is to form the main regional collection of and for the Visayas region. This is the middle group in the Philippines, comprising Samar, Leyte, Bohol, Cebu, Negros, Panay, Masbate and associated smaller islands. This is a reasonable ambition and one which we expect to realize, but in just the last year or two a complication has appeared: the already precarious situation of taxonomy at other institutions has taken a turn for the worse, and if this trend continues we may find ourselves the premiere systematic arthropod collection in the Philippines (and therefore possibly in southeast Asia). This is a very regrettable prospec-, and we are not at all eager to assume the responsibility which it implies.

Over the last 18 months, along with my graduate student, Juliet P. CANETE, I have been pursuing the amateur imperative to collect and observe the arachnids around us. As a result we have built up the Museum's arachnid collection from almost nothing to definitely something. We're not about to be in a class with the Canadian National Collection or the Florida State Collection, but we have reached the point where the various taxonomists who write to ask about our holdings are not necessarily wasting their time. It is germane, then, to to address the question of loan and exchange policies. These are treated in our official statement of goals and policies, available on request, but for most of you the following remarks will suffice. Loans are made on the usual basis, normally for one or two years, with the borrower having the privelege to retain a reasonable number of specimens. All material which is, or which will become, primary type material is to be returned to us. At the same time we recognize a pressing need for identification of our fauna and that we have a relatively low capability for such identification within the Philippines. As a result, our loan policies must be somewhat more flexible than those of North American and European museums. We are willing to be generous with specimens in order to find out what we have. This is perfectly legitimate as long as it is understood that our relations with, for example, North American arachnologists, must be for our mutual benefit.

In pursuing the goal of accelerated determinations, we have begun to identify experts who are especially interested in seeing what we collect in particular groups and who are sensitive to our situation. We will send material to them on a preferential basis, awarding exclusive franchises to these experts with the understanding that primary types from our collections will come back to us, and that the division of specimens will be mutually satisfactory.

If there are some particular arachnids you would like to see from the Philippines, please write to me at the address in the byline. I can't promise that we will have seen any such beasts or that we will be motivated to collect them, and we might be slow in sending out our specimens. We do want our material identified, though, so no request will be met with indifference. We will answer letters and cooperate with you as best we can.

If you have published or are planning to publish any revisions or keys including groups known to be in the Philippine Islands, or which logically might be expected here, please send us a copy. We need those kinds of things and we are often slow in learning what has recently been published.

There are marvellous beasts in these parts. It is our task to promote their discovery and study, and we hope to be equal to the task.

References

Barrion, A. T., & J. A. Litsinger. 1981. The spider fauna of Philippine rice agrosystems. I. Dryland. Phil. Ent. 5: 139-166.

Rowland, J. M. 1973. Uropygida of the Philippine Islands, with the description of a new genus and species. Occ. Papers Mus. Texas Tech Univ. No. 16, 11 pp.

LOOKING FOR LUTICA: CHANNEL ISLANDS ARACHNOLOGY

by Martin GALINDO-RAMIREZ, Department of Biology, University of California at Santa Cruz, Santa Cruz CA 95064

I am presently interested in studying the genetic diversity which exists between and among Lutica populations from throughout their range in Southern California, on both the mainland and the Channel Islands. As of this date, I have collected Lutica from 6 sites on the mainland and on 4 of the Channel Islands: Santa Catalina, Santa Cruz, San Miguel, and San Nicolas. They also have been reported from San Clemente and Santa Rosa Islands; arrangements for trips to these islands are in progress.

At each locality, I try to obtain 50-100 specimens of all instars, by the sifting of dune sand in the area of vegetation. All spiders collected are brought back to UCSC alive. Mature males and females are preserved and are subsequently sent to Dr. Willis J. GERTSCH, who is engaged in a taxonomic revision of the genus Lutica. The rest of the spiders are placed individually in tiny plastic vials and these are then placed in separate freezettes according to sample site. All the freezettes are then placed in a -70°C freezer here on campus. Such deep-freezing is necessary to ensure that each spider's proteins will not deteriorate prior to their use in starch gel electrophoresis.

Once my sampling program is complete (hopefully by January or February 1983), my research will then take me into the electrophoretic facility at UCSC's Long Marine Lab, where I shall begin to process the 700-800 spiders I should have in the freezer by then.

Without question, the most exciting part of this study thus far has been the fieldwork on the Channel Islands. These islands are characterized by a tremendous range of geological and biological diversity. The arachnid fauna is conspicuous and abundant, but little studied. There is undoubtedly a great need for a comprehensive arachnid survey here, in light of our lack of even basic information regarding the number and kinds of arachnids which live on the islands.

My fieldwork began in March 1982, with a trip to Santa Catalina Is. accompanied by Wendell ICENOGLE. We stayed at the Catalina Island Marine Institute and were hosted by Steve BENNETT, a Cal State U.-Long Beach alumnus in entomology. During the course of our weekend visit, we found Lutica in abundance at Little Harbor on the west side of the island, as well as many Bothriocyrtum californicum (California Trapdoor Spider) in the hills above Toyon Bay, where the Institute is located. Wendell's special interest was to find specimens of Aliatypus for Fred COYLE, but all he was able to find trapdoorwise, other than Bothriocyrtum, were some Aptostichus collected at a few spots inland.

Later that month, I visited small but beautiful Santa Barbara Is. with Steve BENNETT and other members of the Institute staff. I did not find any Lutica (what sandy beaches there are on Santa Barbara are haul-out areas for pinnipeds and so have no vegetation and no dunes), but during our 2-day stay, we collected various and sundry spiders from all parts of the island accessible by trail. The highlight of the trip was the discovery by me of an Aptostichus female with young, living under a rock near the center of the island.

During the subsequent spring and summer, I was busy with school and later mainland collecting, so I did not get out to another island till September, when I went to Santa Cruz Is. for a weekend trip with members of the Arachnologists of the Southwest: Blaine HEBERT (president), Graem LOWE, and Wendell ICENOGLE, and two Cal State U.-Northridge professors with interests in spiders: Dr. Don BIANCHI and Dr. Ken JONES. We stayed at the University of California's Santa Cruz Island Field Station located in the Central Valley. We found Lutica in limited numbers at Christi Bch. on the west end of the island, as well as at Johnston's Lee on the south side. Graem's special interest is scorpions and he found many of them on Santa Cruz, particularly under debris near washes; Wendell once again searched for Aliatypus but couldn't find any; Blaine, a general collector par excellence, had the good fortune of collecting the only Bothriocyrtum we found during the trip, taken from a road cut. Don and Ken enlisted the services of all of us in searching for Green Lynx Spiders, to be given to Marie TURNER, and some 20-30 (the exact number escapes me at the moment) were collected.

My trip to San Nicolas Is. during October was a great success, primarily due to the fact that I stayed on the island for 5 days and had the complete use of a 4-wheel drive truck (a necessity for getting around on an island, especially where roads are pushed through sandy areas). The vehicle and trailer where I stayed were made available to me through the generosity of some U. S. Fish and Wildlife researchers from UCSC. These fellows are conducting a baseline study of the ecology of the kelp beds at San Nicolas, as a prelude to the possible reintroduction of the California Sea Otter.

I found Lutica in perhaps the densest concentrations I have ever encountered, on the mainland or the islands; given the basically pristine and undisturbed nature of the dunes of San Nicolas, that's not too surprising. I collected 200 specimens each from Red Eye Bch. near the west end of the island and from an area near Dutch Harbor on the south side. Among the specimens from Red Eye Bch. was a mature male; prior to my visit, no mature male Lutica had ever been collected from San Nicolas. Dr. GERTSCH now has this specimen.

I spent the rest of my time doing general collecting and photographing the various parts of the island. Aside from spiders, there are many other creatures to watch and photograph, some of which are quite conspicuous. On this one island, for example, are breeding rookeries for sea gulls, California Sea Lions, and Northern Elephant Seals. There are also Indian midden sites all over the island which are being unearthed by the winds which constantly scour the island.

Finally, little more than a week ago (Dec. 6), I went on a day trip to San Miguel Island. This is the island of the northern four which is farthest from the mainland, and due to its remoteness and uninhabited nature, one must charter a boat to get out there (unless of course you own a boat of sufficient size and ability to make the trip).

Like San Nicolas, San Miguel is constantly windblown. The gentlemen who shared the charter with me, a professor in Environmental Studies from UC Santa Barbara, is engaged in research dealing with wind energy. He maintains an anemometer on San Miguel year round and he tells me that his instrument has recorded velocities up to and including 110 mph.

Although I have a permit from the National Park Service to collect up to 30 specimens of Lutica (San Miguel, along with Anacapa and Santa Barbara, are part of the Channel Islands National Park) from each island under their jurisdiction, I was only able to find 20 on San Miguel in about 4 hrs. of sifting. The fact that the sand was wet just below the surface forced me to try to sift only the dry top layer, which was difficult to do successfully and was time-consuming. I did come up with as many, if not more sand dune dwelling salticids. These I have given to Charles GRISWOLD of UC Berkeley, who is currently in the process of writing up his dissertation so that he can assume the position of Curator of Arachnids at the Natal Museum in South Africa in August 1983.

For the locality information for many of the places I have been to on both the mainland and Channel Islands, I am indebted to Mel THOMPSON. I went to visit Mel in February and March of this year with topographic maps of all the islands and AAA maps of the coastal mainland from Santa Barbara down to Baja California, and he very patiently shared with me his locality information, county by county and island by island. Mel collected these spiders during the mid-1970's on both the mainland and Channel Islands. Dr. GERTSCH now has all of Mel's specimens.

I hope this account of island visits is not boring, because I wished to convey to other arachnologists the sense of adventure which surrounds trips to these islands and the air of discovery which comes to be associated with any collecting forays on the islands, for any arachnid found is a potential range extension, or a new race, sub-species, or species. Fired by the possibilities of collecting on the islands, I hope at least some will become motivated enough to organize trips to the Channel Islands, in order to learn more about the arachnid fauna of this unique "natural laboratory", as Dennis M. POWER has described the islands.

SPIDER HUNTING IN CHILE

By Norman PLATNICK, Department of Entomology, The American Museum of Natural History, New York, NY 10024

Thanks to a grant from the Eppley Foundation for Research, I was able to spend six weeks (from late October through early December, 1981) collecting in Chile, accompanied by Toby SCHUH, an American Museum hemipterist. The main targets were gnaphosids, particularly those belonging to an endemic Chilean subgroup of the genus Echemoides, but we tried to get an overview of the ground-dwelling spider fauna in general. We flew into Santiago, rented a car, drove north to Coquimbo province, and then worked our way south to Puerto Montt and the island of Chiloe, flying to the road-building outpost of Chaiten before returning to Santiago.

As is well known, the Chilean spider fauna is quite unlike that of the rest of the New World. One of the most abundant, and certainly the most conspicuous, of the web-builders was Thaida, a "hypochiloid" and the only representative of its family. The webs look like lattice-work, and are evidently added to gradually as the sedentary spiders grow; the largest get more than two by four feet. The retreats can extend far back into logs, stumps, and banks, so the spiders, though ungainly, sometimes prove elusive.

The litter fauna, as revealed by the samples garnered with a set of portable Berlese funnels, is far more diverse than expected, with numerous new taxa in such groups as the mecysmaucheniids, anapids, textricellids, and orsolobids. Perhaps the most interesting specimens worked up so far represent a new genus of mecysmaucheniid most closely related not to the other American taxa but to the New Zealand genus Zearchaea.

The country was a wonderful place to work, although somewhat expensive while we were there, because of an artificial exchange rate that has since been abandoned. The scenery, from the scrublands of the north to the lakes and waterfalls of the central provinces and the rainforests of the south, is absolutely magnificent. There are few noxious animals; we encountered only a couple of small snakes, mosquitoes were bad at only one site, and the terrestrial leeches of the south are not terribly efficient (you feel and remove them very quickly!). The people are very friendly; our local host, Dr. Tomas CEKALOVIC of the University of Concepcion, did everything possible to make us feel at home. At one point we were befriended and transported for the day in a tiny boat by a family that found us languishing by the shore, as they were setting out to check their cultured mollusc beds. The only unpleasant experience was being thrown from our beds in the middle of the night by an earthquake at Los Villos; it toppled a few statues and put gaps in some roadways, but did little serious damage. And that was more than compensated for by the magnificent seafood and plentiful red wine that beckoned at day's end. We hope to make two additional trips over the next few years.

WHAT A TANGLED WEB WE WEAVE WHEN FIRST WE PRACTICE TO DECEIVE

The following exchange of correspondence speaks for itself:

Eastman Kodak Company
Dept. 412L-51
Rochester, NY 14650

Dear Sir or Madam:

We are writing to inform you that the text in your advertisement for "Kodak Vericolor II professional film, type L" (Photographic, July, 1977), p. 88) is grossly misleading. You state:

> "How do you show the minute size and complexity of a 1/4-inch-square micro-circuit with more than 18,000 components and delicate gold lead wires? TRW photographer Lou Arbolida photographed it on a garden spider's web suspended between stalks of wild oats."

First: the spider you show is not a garden spider (family Araneidae), it is a funnel web spider (family Agelenidae) probably of the genus Agelenopsis. No agelenid spider spins orb webs, they don't occupy orb webs, and therefore the photograph is a misrepresentation, a trick.

Second: the spider is without doubt dead.

Third: even if it were a garden spider, garden spiders always sit head down in their webs, so that the ersatz occupant of this web is upside-down.

Fourth: the web itself is upside down.

Fifth: the spider is not "on" the web. If the spider were on the web, its feet would end on lines, and the web would be distorted (they're not and it's not). The final photograph was probably produced by a photo-montage technique, e.g., superimposed images.

Sixth: both the web and the spider were clearly photographed at a different magnification than the circuit, so that the circuit is not "on" the web (again, the web would be distorted by the circuit's weight). More superimposed images?

Seventh: the text suggests that the web is attached to the wild oats. It obviously is not.

Eighth: the web has been sprayed with some liquid, yet neither the spider nor the wild oats are wet.

We realize the advertisement is at least five years old, but it was only brought to our attention last week. We agree that the photograph is arresting, even artful, but it is about as "real" as a rabbit with antlers. Were you aware of this, or did Lou Arbolida misrepresent his procedure to you? Our basic point is this: if you don't acknowledge such glaringly obvious inconsistencies as the above, why should the public even believe that the picture was taken on Vericolor II professional film, type L?

Respectfully yours,

Jonathan Coddington

Mark K. Stowe

John M. Hunter

Cecile Villars

Herbert W. Levi
Alexander Agassiz Professor
of Zoology
Curator in Arachnology

Cecile Villars
Department of Invertebrates
Museum of Comparative Zoology
Harvard University
Cambridge, MA 02138

Dear Cecile,

Thanks very much for the copy of the letter from all of you to Eastman Kodak. It loses some of its force, however, when one realizes that the photograph of an orb-weaver murkily reproduced on the cover of Harvard U. Press's own BIOLOGY OF SPIDERS has been printed upside down. It's A. diadematus, which always faces down in its web with the longer side of the free zone ellipse also downward.

But don't despair. In an advertisement for sports shoes that recently appeared in RUNNER'S WORLD and several other magazines, a similar picture was printed upside down, but in this case in defiance of gravity as well as biology; the dew droplets on the web are on the upper sides of the threads, which were made to arch upward rather than downward under their weight.

And if you get a copy of Freeman & Co.'s latest book catalog, you'll find that their ad on ANIMAL BEHAVIOR IN LABORATORY AND FIELD includes one of Peter Witt's laboratory web photos printed on its side.

There seems to be a literary compulsion operating here which insists on spiders being more comfortable head up, like us. Maybe it's an expression of chauvinism for closed circulatory systems.

Sincerely,

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

RECEIVED
JUL 5 1983
C. A. HARPER

Harper, C. A.
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