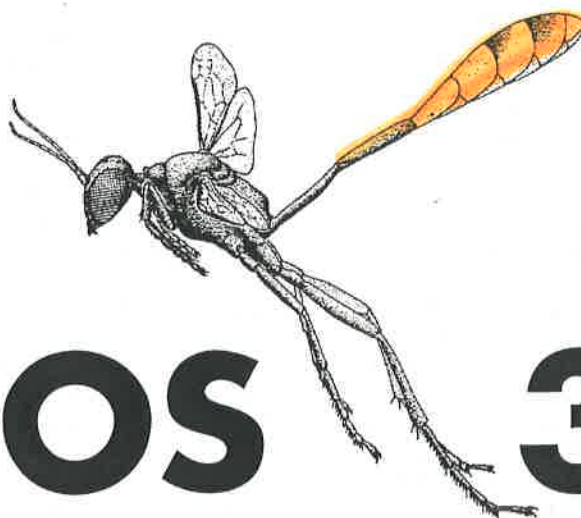


JUNE 1996

# SPHECOS 30

A FORUM FOR ACULEATE WASP RESEARCHERS

COLOR BY NANCY



## Final Issue!

(under the editorship of Arnold S. Menke)

No kidding folks, this is it. **Sphecos 30** brings to a close my 17-year editorship. I gave fair warning in **Sphecos 28** of my impending retirement and the need for someone to take over the production of this newsletter. As of mid 1995 no one had volunteered, so I discussed the matter with potential editors at the Hymenoptera Conference in Davis, California, in August 1995. Each one I talked with had valid reasons for declining the editorship. So, for the time being, this is the last issue of **Sphecos**.

When I started **Sphecos** in 1979 I thought a newsletter on aculeate wasps would kindle better communication among wasp workers of the world, and keep each of us aware of what others were doing, thereby promoting help and cooperation as much as possible. Judging by the comments I continually receive from readers, I think these goals have been fully realized. **Sphecos** is eagerly read by many. Thus, this is a very sad day for me.

Why am I stepping down? There are several reasons. When I retire September 30, Nancy and I will move to Bisbee, Arizona, where we purchased a home two years ago. I will no longer have access to the library facilities of the Smith-

sonian. Thus, keeping up with current literature will not be easy. Also, I will no longer have use of free mailing of **Sphecos** by my employer, the USDA (I estimate that it costs the USDA about \$1000 to mail 630 copies of one issue). Thirdly, and perhaps most importantly, the first year of my retirement Nancy and I will be very busy getting settled in our new home. We will have many things to do. Conceivably I could work with a new editor by continuing to receive material submitted for inclusion in the newsletter, and keep it organized. But beyond that, I will be too busy to do more.

Some of you will say, why can't Terry Nuhn take over? Terry is a technician and he works part time for 5 different scientists. When I retire, Terry's work schedule will be reorganized to give the 4 remaining people more of his time. He will not be in a position to do any-

thing with **Sphecos**, as much as he might like to.

Ideally the editor should be affiliated with an institution with a good library because keeping up with current literature is a vital part of **Sphecos**. Without access to current publications in entomology, an editor would have a difficult time compiling lists of current literature. I suppose the editorship could be a joint effort by two people, one of whom had library access. Such partnerships are already in place for some of our sister newsletters in Hymenoptera. Let's hope that someone will volunteer to keep **Sphecos** alive.

Paying for reproduction of the newsletter no longer seems to be a problem. Issue 29 depleted all of our **Sphecos** money, although, since last August, a total of \$2400 has been donated by various readers, some of whom have been very generous. Issue 30 will have used up at least a third of this money, so if someone does offer to take over the editorship, they will have some funds available for future issues, as well as mailing costs, if not covered by their institution.

I am proud of **Sphecos** and it has been a rewarding 17 years. Terry Nuhn

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has been my right hand man for many of those years, and without his computer prowess and expertise, **Sphecos** would have had a different look. He singlehandedly upgraded the newsletter in 1989 when issue 18 appeared. The 3-column format gave **Sphecos** a much more professional look. I can't thank Terry enough for all the help he has given me during my editorship. And a lot of thanks go out to all of you who have helped give **Sphecos** that special something that made it informative, insightful, historical, hysterical, argumentative, and generally entertaining. We have had a good run, haven't we!

### the Mud D'aub

#### Plea for Literature from Menke

As indicated above, I will no longer have access to current literature. I will be wholly dependent upon all my friends in the scientific community to keep me informed of what they are doing. Thus, I hope all of you will continue to send me reprints of your papers! I plan to continue my research in Arizona and want to keep up with what is going on in the wasp world. **Please note my new address:**

#### Menke's new address

On or about October 1, 1996, my address will be as follows:

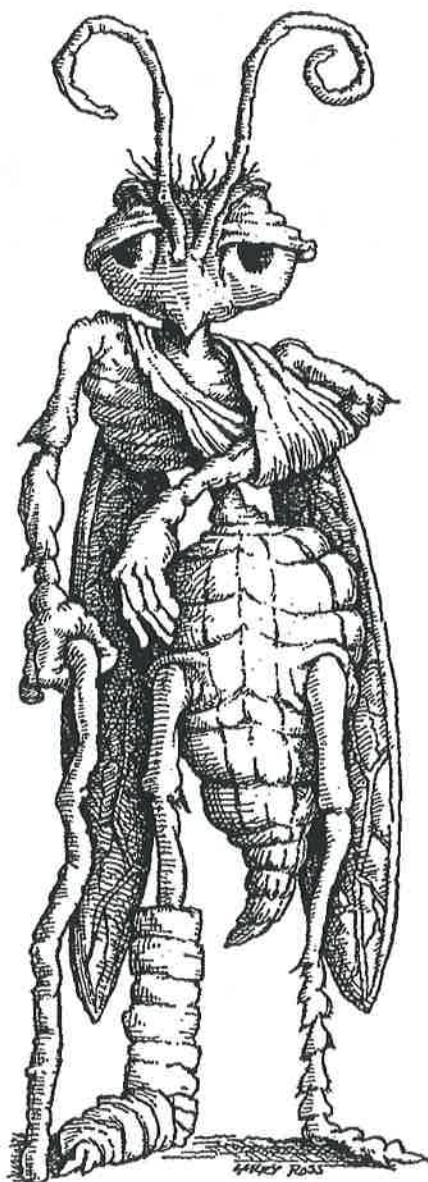
1429 Franklin Street  
Bisbee, Arizona 85603.  
Telephone: (520) 432-5427

#### You are Welcome!

Our house in southeastern Arizona sits on four acres of high desert (5200') with the Mule Mountains just behind us. Southern Arizona is a wonderful area for wasp collecting and many prime locations are only minutes away by car. When planning trips to Arizona, please keep us in mind. We have a spare bedroom, and you would be most welcome. We also have a beautiful view of nearby Mexico with various isolated mountains in the distance, and sunrises and sunsets are gorgeous. We call the place "Menke's Tarantula Ranch" or "Ammophila Acres". We have yet to settle on one of these names for our

place, although we are leaning toward the second alternative for obvious reasons.

One major activity that will occupy our first year in Bisbee is the construction of what Nancy calls our "hobby house" or the *Ammophila* Research Institute. This will be a combination wasp research lab, railroad history center complete with darkroom, and a potter's shed (for Nancy who plans on resuming her love of pottery building). Initially I will be working on and completing my revision of the New World *Ammophila*, but other research projects are contemplated.



Farewell from the Mud D'aub

### The Sphecos Reproduction Fund

With the hope that a new editor for **Sphecos** will come forward, Nancy will maintain the **Sphecos** fund bank account for the near future. Should the unthinkable happen, i.e., no more **Sphecos**, we will return the remaining funds to those persons who donated money beginning in August 1995. We have kept records of who these people are and how much they donated. The remaining money would be parceled out to these people according to the percentage of their donation.

I will also continue to compile material that people may send to me for **Sphecos** on the assumption that a new editor will materialize.

#### Recent Donators to the Sphecos Fund:

Karl Krombein	Jay Rosenheim
Jim Carpenter	Raymond Wahis
Don Manley	Helen Court
Mike Ohl	Robert Longair
Volker Mauss	Gerald Legg
Gary Gibson	Jacques Bitsch
Justin Schmidt	James Gillaspie
Donald Quicke	Laurel Hansen
Gabriel Melo	Martin Cooper
Denis Brothers	Eric Eaton
Marius Wasbauer	Michael Archer
John Heraty	Robin Edwards
Rogério Martins	Yvan Barbier
Mike Edwards	Nancy Elliott
Christoph Saure	Peter Yeo
Stuart Fullerton	Hans-Ulrich
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Howell Daly	Elizabeth
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Jon Seger	Verhaagh
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Laurene Foye	Seiki Yamane
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Monica Russo	Raymond
Roy Snelling	Henson
Howard Evans	Heinrich Wolf

### Thoughts on Sphecos

I have been involved in the production of **Sphecos** since issue 8 – that's twelve years ago! In the intervening years I feel like I've become part of the aculeate wasp community, even though my own research interests involve ants. I have been proud to serve with **Sphecos**, helping to bring together aculeate workers with the news, e-mail addresses and other items we have published. I've had the opportunity to meet some of you or to make friends over the Internet. Without **Sphecos**, I won't be able to keep up with most of you anymore, and I think that many of our readers may feel a bit more isolated without us. I hope someone revives **Sphecos** and carries on our work. And maybe if they do, they can send me a copy.

**Terry Nuhn**  
Assistant editor



### RESEARCH NEWS

**Eduardas Budrys** (Institute of Ecology, Akademijos 2, Vilnius LT-2600, Lithuania) reports, "Right now I am continuing to work on the *Diodontus* revision, in particular the part which will be published as "*Diodontus* of the Iberian peninsula" with **Dr. S. F. Gayubo**. There are at least 5 new species of this genus from this part of Europe, the most thoroughly researched part of the world!"

**Paige Carithers** (331 Funchess Hall, Auburn Univ., Auburn Alabama 36849-3414. carittp@mail.auburn.edu) writes, "I am a graduate student at Auburn University in Alabama. I am currently working with *Isodontia mexicana* where it nests in the tubular leaves of pitcher plants. I also have a parasitoid wasp emerging from some of the *Isodontia* pupae which Dr. Robert Matthews (Univ. of Georgia) has provisionally identified as some sort of pteromalid."

**Julio Cesae Rodrigues Fontenelle** (Laboratório de Ecologia e Comportamento de Insetos, Depto. Biologia Geral, Inst. Ciências Biológicas, Univ. Federal de Minas Gerais, Caixa Postal 2486, Cep 30.161-970, Belo Horizonte

M.G., Brasil) writes, "I'm a Msc. Ecology and Management of Wild Life student starting my research on the wasp *Rubrica nasuta* with special regard to its prey. This is part of a long term project on wasps and bees under the supervision of Dr. R. P. Martins at the university's ecological station."

**Jean Leclercq** (rue de Bois-de-Breux 190, B 4020 Jupille, Belgium) celebrated his 75th year on April 26. His revision of *Euphiloides* has just been published, and one on *Anacrabro* is in press. Also to appear soon is his paper on the Australian *Rhopalum*, and Jean has submitted a paper for publication on the African and Asian *Entomognathus*. Currently Jean is busy with the Asian species of *Ectemnius*, subgenus *Cameronitus*.

**Arnold Menke** (1429 Franklin Street, Bisbee, Arizona 85603 – after September, 1996) has several papers in press: *Claves ilustradas para las subfamilias, tribus y géneros de esfécidos neotropicales* (in collaboration with **Fernando Fernández**, includes an English version); The *Ammophilini* of Costa Rica, an identification guide; Phenology of *ammophilina* wasps in a premontane wet forest in Costa Rica (with **Frank Parker**); A new *Ammoplanus* from San Clemente I., California; and Neotropical *Mellinus*: a review. In addition, Arnold and **Woj Pulawski** are completing their manuscript titled "A review of the palearctic *Spheg* of the *flavipennis* group". Progress has been made on Arnold's Revision of the New World *Ammophila* but the completion of this humongous project will have to be done at the **Ammophila Research Institute** in Bisbee, Arizona.

**Enrico Negrisola** (Via Conselvana 192, 35020 Maserà (PD) Italy) recently started work on a PhD. He originally wanted to go to the University of Kansas but was unable to get a scholarship. So he applied to Padua University instead. There was a fierce public competition for only 6 PhD thesis slots in evolutionary biology, but out of 65 applications, Enrico came in third! It is difficult to obtain a thesis position in systematics, so he was forced to temporarily switch to another field. He is sequencing the molecule of extracellular hemoglobin of a marine worm (*Polycheata*), and part of his work will be to produce a cladistic analysis based on the hemoglobin sequences combined with morphological characters.

In April of 1995, his father died of a stroke at only 62. Enrico was deeply affected and his research was temporarily interrupted. But in late summer, he took an intensive course in systematic biology at Reading University (near London) organized by the European Community, where he studied techniques of cladistic analysis.

Meanwhile, he has been trying to complete a manuscript on the sphecid wasps of Italy with **Guido Pagliano**. They were expecting to finish it by the end of 1995 and publish it this year. They have been working on this project since 1991.

All of these activities have left Enrico little time to work on his *Liris* revision but he hopes to finish it in 1997. He says he loves these wasps and has worked through over one third of the material he has on loan.

**Colin Vardy** (Yarina, Springwell Lane, Harefield, Middx. UB9 6PG U.K.) is working on a multi-part revision of the genus *Pepsis* (Pompilidae) and is nearly ready to submit Part 1 for publication. He says, "Part 2 is also complete except for slight amendments. Included in it were 2 males without females (both from southeast Brazil); as one of these species was not very distinct from a described species, despite there being two specimens of it, I was not entirely happy about it. Southeast Brazil has emerged as the area of much of the highest endemism for this genus in the whole neotropical area; several of these endemics are new to Science and most are rare in collections. I had been told that there was extensive material in the Museu Nacional in Rio de Janeiro which I had not been able to get by post, and this was the only collection likely to contain the missing sexes. All these facts together made us decide to sport the money and go there."

"We found two more males of the 'doubtful' species, plus a female; and the 'missing' female of the other species, too. A further male without female (belonging to a subsequent part of the publication) has remained without female, but it is very distinct. However, I found a further two males, each representing a new species.....! Fortunately, they are both very distinctive and fall in parts subsequent to part 2. As for these other parts, before going to Brazil I completed all the figures as well as taxonomy and descriptions. The phylogenetics is proving a real headache as



expected. When the character reversals reach 50% of the total characters, you're in trouble. I'm trying hard not to leave too many unresolved polytomies because it makes the biogeography so difficult. Some of the remaining species groups are proving hard to define, so I'm changing my approach and first aggregating the terminal clusters of species with plenty of apomorphies, then will try to see how they link with each other. The grand total for the genus is now about 133 species, of which 23 are new. Nearly half are treated in parts 1 and 2 together.

"The first two parts of *Pepsis* together cover just under half the genus, so there are several more parts to come. There are too many difficulties with publishing in one part, desirable though this might be. Currently I'm working on the phylogenetics, it's like trying to run through syrup."



## NEW ADDRESSES

**John C. Abbott:** Dept. of Biological Sciences, University of North Texas, Denton, Texas 76203.

**Alexander Antropov:** Zoological Museum of the Moscow Lomonosov state Univ., Bol'shaya Nikitskaya Street 6, Moscow K-9. 103009. Russia.

**Øistein Berg:** Melumveien 39, N-0751 Oslo, Norway.

**Nancy B. Elliott:** Dept. of Biology, Siena College, Loudonville, NY 12211. FAX: 518-783-2986. E-mail: elliott@siena.edu

**Robert S. Jacobson:** Greer Laboratories, Inc., P.O. Box 800, Lenoir, NC 28645.

**Volker Mauss:** Institut für Landwirtschaftliche, Zoologie und Bienenkunde, Melbweg 42, D-53127 Bonn, Germany

**Arnold Menke:** 1429 Franklin St., Bisbee, Arizona 85603 (after Sept. 30)

**Christoph Saure:** Oranienstraße 24, D-10 999 Berlin.

**Hideo Takahashi:** Higashi-Asakawamachi 876-1-203, Hachiôji-shi, Tokyo, 193 Japan.

**Peter F. Yeo:** 71 Grantchester Meadows, Cambridge, UK CB3 9JL.

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**Franco Strumia,** Pisa, Italy:

0039-50-48227

**Abraham Willink,** S.M. de Tucumán,

Argentina: 54 (81) 311462

## MISSING PERSONS

**Kumar Ghorpade,** Bangalore, India

**J.W. Stubblefield,** Belmont, Massachusetts

## PEOPLE IN THE NEWS

**Karl V. Krombein** – A Festschrift, honoring Karl and his stature as the dean of American wasp workers, has just been published (see announcement on page 33). Karl celebrated his 84th birthday on May 26. He comes to the museum daily to work on various projects and his research output continues undiminished.

**Dr. Stefan Schödl** is now curator of the Hymenoptera collection of the Naturhistorisches Museum, Vienna, Austria.



## NECROLOGY

**Børge Petersen**

As this issue of *Sphecos* was nearing completion, we learned of the recent death of Børge Petersen, a mutillid expert at the Zoologisk Museum, Copenhagen, Denmark.

## OBITUARIES

**Fritz Plaumann**  
(1902-1994)

Fritz Plaumann was a well known collector of Brazilian Hymenoptera. He sold material to many museums and individuals over the years. Plaumann's collection was described in the following articles: A coleção de insetos de Fritz Plaumann, by Benedito Cortês Lopes, 1988, *Ciência Hoje* 7(38):74; Museu Entomológico Fritz Plaumann by Hitoshi Nomura, 1991, *Revta bras. Ent.* 35:474-478. Two obituaries have been published in *Revta bras. Ent.* 39(1):225-227 (1995): one by Hitoshi Nomura and one by Edeltraud Pierozan. Marcelo Teixeira Tavares translated them into English for us:

Friedrich Plaumann or Fritz Plaumann, as he was better known, was born in Eylau, Prussia [now Russia], on May 2, 1902. He was the son of Friedrich Wilhelm Plaumann and Hulda Plaumann. He died in the town of Seara, Nova Teutônia, Santa Catarina, Brasil, the 22nd of September, 1994.

Fritz Plaumann and his Entomological Museum were described in *Revta bras. Ent.* 35:474-478 (1991).

Fritz came to Brasil with his parents, arriving at the port of Rio Grande on November 4, 1924 (Rio Grande do Sul). Ten days later they reached Seara, Nova Teutônia, where they settled down. He had attended high school in Eylau as well as Königsburg, but he could not afford college. He used to collect insects and record meteorological data, routines that he continued in the state of Santa Catarina.

His entomological collection contains over 80,000 specimens and 17,000 species. This material was identified by well known entomologists around the world, including Brazilians. He wrote his letters in German, French, English and Portuguese. The government of Nova Teu-

tônia purchased his collection. The Fritz Plaumann Entomological Museum was founded with the help of the state of Santa Catarina and Germany. It was inaugurated October 23, 1988 when he was 86 years old. Visiting entomologists will find a laboratory there in which they can work.

Since 1971 Fritz received many honors (see 1991 paper cited above). About 160 species of insects, one frog, six genera and one subfamily were named in his honor.

He published only three papers:

1937. Beiträge zur Lepidoptererenfauna von Sta. Catharina, Sud Brasilien. Ent. Rundsch. 55:169-171.

1937. Über das Sammeln im Brasilianischen Urwald. Koleop. Rundsch. 23:236-243; 1938 – 24:7-13; 1940 – Revta. Ent. Rio de Janeiro 11:909-920.

1954. A new waterstrider from Brazil (Hemiptera, Veliidae). Dusenja 4:414-416 (with C. J. Drake)

In 1949 he published the book *Die Entstehung des Lebens* (The Origin of Life) in which he gave his views on this subject.

Entomology has lost one of the grand collectors, who now joins others like J. F. Zikán, Ricardo von Diringshofen and Julius Arp.

**Hitoshi Nomura**

1924. The economy of Germany after the First World War was not good and the country was in recession. The Plaumann's had been prosperous merchants, but because of the postwar hardships, they decided to try a new life in distant, unknown Brasil. So they arrived with young Fritz who had an eagerness to explore and learn about his new land. Music, literature, sports, and entomology were passions that Fritz had to set aside because they were absent in his primitive new homeland. He did not lose his heart, however, because he soon discovered the wonders of the forest, and here he developed his major passion, entomology. Almost immediately he explored the fields and forests of Seara in search of insects, cataloging them and trying to find new species. Music and his other passions were not forgotten. Fritz devoted time to each of them to complete his education and improve his spirit.

1925. At the age of 22, Fritz Plaumann began life in earnest in Brasil. He was a photographer, professor and writer, all of this as a means of survival. But ultimately, entomology and the world needed Fritz Plaumann. The world did not seem so large to Fritz, and he corresponded with many people from many of the countries around the world in an effort to increase his knowledge.

1954. This was a happy year for Fritz. He married Clarissa, a German with whom he had corresponded, and they hoped for a happy life in Brazil. However, the isolation of Nova Teutônia was more than she could bear, and Clarissa returned to Germany. She left Fritz alone with his insects. His love of nature and entomology was greater than any other. Fritz' loneliness was softened by Gisela and Edeltraud. Both of them dedicated their love to Fritz as well as his work. We do not know what strange forces cause a man to dedicate his entire life and love to one work, but Fritz dedicated each minute of his life to entomology and to the study of nature. His desire for knowledge was so great that nothing escaped his eyes and his thoughts. Thus he studied minerology, climatology, botany, and other fields of human knowledge.

1994. On the 22nd of September at 9:45 AM Fritz left us, his life dedicated to nature finished. 92 years of study, 92 years of work, and above everything else, 92 years dedicated to humanity.

**Edeltraud Pierozan**



**Alessandro Mochi**  
(1920-1995)

Alessandro Mochi died tragically during a collecting trip in Africa with Woj Pulawski (see below). An obituary in Italian by Pier Luigi Scaramozzino appeared in *Hy-Men* 6, pages 6-8 (1995). He kindly provided an English translation for *Sphecos*. Sandro, as he was known to his friends, was a true gentleman in every respect and I was fortunate to have met him briefly during a visit to the Smithsonian many years ago. He was a great collector and built up a meticulously prepared collection. His wasp collection has been placed in

the Museo Regionale de Scienze Naturali in Torino, Italy. – editor

**Alessandro Mochi**  
(April 23, 1920 – April 6, 1995)

It was under an African sky at Lusaka (Zambia) that Alessandro breathed his last at the age of 75 on 6 April 1995 under circumstances that even now are not entirely clear. He was in Zambia with Wojciech J. Pulawski, a fellow entomologist from the California Academy of Sciences, for what he himself had called the last of his entomological hunts. His intention, in fact, was to devote the future to rearranging his collection of Aculeata and publishing the many observations of these Hymenoptera that he had accumulated since his childhood.

Mochi was born at Cairo in 1920 and lived in Egypt until 1938. During the war he served with the Allies in Italy and took a degree in medicine at Rome. From 1949 to 1979, he worked for the WHO (World Health Organization) and travelled with his family to many developing countries: Egypt, Syria, Turkey, Cameroon, Congo, Ethiopia, Kenya, Somalia, Sudan, North Yemen, Myanmar, Philippines and Jamaica. After his retirement, he continued to work as a consultant in public health plans and projects, and journeyed throughout the Third World.

In his teens, Alessandro collected insects of every kind in Egypt, especially the Aculeata. He got to know Alfieri, Keeper of the Royal Entomology Museum in Cairo, and Efflatoun Bey, an entomologist at the Egyptian Ministry of Agriculture.

He drew this love of entomology from his father Alberto, who took him, together with his wife Antonia and their Nubian driver Abu, out to collect Hymenoptera on the outskirts of Cairo. These insect hunts, of course, were confined to Spring Sundays from April to June and others in Autumn, when the wind was not blowing from the desert and there were no commitments in the way of studying and preparing for examinations. The burning summer heat was enough to banish any thought of going out into the desert to collect insects under the mid-day sun. The family's excursions also included trips to some of the lesser known and harder to reach oases. There was an "expedition" to Rhodes, where Alberto went to work in the summer of 1933, while other summer holidays were

spent in Italy and Switzerland. On these occasions, both father and son collected the insects which formed the original core of the A. Mochi Collection that bears their joint name, while another son contributed the first examples of the fauna of tropical Africa from Ethiopia and Somalia.

During these years, Alberto was in touch with European entomologists and exchanged material with them. As a result, he became so engrossed in the question of systematics that he took painting lessons at the age of 55 in order to illustrate his monographs on the *Cerceris*, *Philanthus* and *Stizus* of Egypt which were published in 1939 and 1940.

Shortly before the war, the Mochi family left Egypt for what was expected to be a short absence, and the collection was placed in the hands of Alfieri. Fate willed otherwise, however, and it was not until 1946 that Alberto miraculously recovered it, albeit shorn of many items. These had probably been sold in the interim, since some Mochi types can now be found in the collection of the Smithsonian Institution in Washington, D.C.\*

In 1952 at Damascus, Alessandro began to collect Hymenoptera again. Over a period of three years, he gathered and prepared more than 5000 Aculeata from Syria and Lebanon. Some of these were studied by De Beaumont (Lausanne) and Pulawski, who also described a certain number of new species. In the years that followed, he never ceased to add further specimens whenever the seasons and his commitments allowed. Egypt, Sudan, Ethiopia, Kenya, the islands of Zanzibar and Pemba, Central African Republic, Zaire, Congo, Cameroon, Ivory Coast, Mauritania, Senegal and Madagascar were the main sources, while other items came from North and South Yemen, Bangladesh, Myanmar and the Philippines. Palaearctic insects were collected by Mochi in Italy, Switzerland, Greece, Turkey and Tunis, or received in exchange from other entomologists.

Fluency in the main European languages and Arabic, which he spoke with a slight Syrian accent, and the experience he had acquired after so many years spent in Arab and African countries, made Alessandro an admirable travelling companion, who never had a problem handling difficult situations.

Before leaving for Zambia, he had been preparing himself for the sedentary work that awaited his return: hours

spent determining insects, arranging the collection, consulting books and journals, and contacting specialists and museums. He had begun to write down his numerous impressions gathered during a lifetime spent in the field collecting and examining insects. Among his papers I have found several notes on the Sphecidae of Egypt, Sardinia and Greece, jottings on cladistics, and index cards.

Thanks to the intervention of his friend Franco Strumia, the Alessandro Mochi collection is now at the Regional Natural Sciences Museum, Turin, in the company of other noteworthy Hymenoptera collections, such as that of Massimiliano Spinola. It will now be available for study by specialists. The bulk of this most important collection consists of Sphecidae, followed by Pompilidae, Scoliidae, Chrysididae, Mutillidae and a few others, derived from several parts of Africa, the Middle East and Southern Europe. Many of the areas where Alessandro used to go are now off limits for political reasons, and may well remain so for a good number of years. His collection is a mine of data that only patient study will bring to light, and in so doing fulfill what he had hoped to achieve. As he wrote some time ago, "I hope to publish some day, but just now I am still too occupied professionally and feel too young to limit myself to sedentary work only" (*Sphecos*, 6:25, 1982).

Entomological publications by Alessandro Mochi

1982 – Profiles. Alessandro Mochi. *Sphecos*, 6:25

1987 – The "A. Mochi" Aculeata collection. *Sphecos*, 14: 42-44.

1990 – Collecting reports. Mauritania 1989. *Sphecos*, 20:32.

1993 – Note faunistiche su alcuni Sfecidi italiani (Hymenoptera). Boll. A.R.D.E., 47: 103-107. (in conjunction with D. Luchetti).

1994 – Brevi riflessioni sul genere *Trypoxylon* in Italia. Hy-Men, 5: 15-16. (in conjunction with D. Luchetti).

Works referred to in the text (Entomological publications by Alberto Mochi):

1939 – Revisione delle Specie egiziane del Genere *Cerceris* Latr. (Hymenoptera: Sphegidae-Philanthinae). Bulletin de la Société Fouad 1<sup>er</sup> d'Entomologie. Séance du 22 Juin 1938:

136-228. (dated 1938, published 1939)

1939 – Revisione delle Specie egiziane dei Generi *Philanthus* F. e *Nectanebus* Spin. (Hymenoptera: Sphegidae-Philanthinae). Bulletin de la Société Fouad 1<sup>er</sup> d'Entomologie. Séance du 15 Mars 1939: 86-139.

1939 – Revisione delle Specie egiziane del Genere *Stizus* Latr. (Hymenoptera: Sphegidae). Bulletin de la Société Fouad 1<sup>er</sup> d'Entomologie. Séance du 10 Mai 1939: 183-236.

1940 – *Ammoplanopterus* nov. gen. *sinaiticus* nov. spec. (Hymenoptera: Sphecidae-Pemphredoninae). Bulletin de la Société Fouad 1<sup>er</sup> d'Entomologie. Séance du 27 Mars 1940: 27-29.

**Pier Luigi Scaramozzino**

\*Postscript

Sandro's own account of the history of his collection (*Sphecos* 14:42-44, 1987) and his life is worth reading for more detail. He makes it clear that Alfieri removed holotypes from the Mochi Collection during the war and incorporated them in his own. The Smithsonian purchased the Alfieri Collection about 30 years ago and thus acquired the Mochi types contained in it. In his *Sphecos* article Sandro stated that the Smithsonian "... would be a most fitting place for [the Mochi material taken by Alfieri]." The Mochi types at the Smithsonian are: *Ammoplanopterus sinaiticus*, *Cerceris alfieri*, *C. gynochroma*, *C. lateriproduca*, *C. priesneri*, *Philanthus sinaiticus*, *P. soikae*, *Stizus arnoldi* and *S. rufoniger*. – editor

#### Alessandro Mochi's Last Trip to Africa. An Obituary by

**Wojciech J. Pulawski**

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Our joint entomological expedition to Zambia in 1995 turned out to be the last one in Sandro's life. As we went to Mumbwa, a small town some 150 km west of Lusaka, Sandro refused to eat during the evening of 31 March. He ate little the following day, and did not feel well. A visit to the local hospital revealed no malaria, and the reason for his condition was unclear to us. I drove

Sandro to Lusaka, and tried to put him on the first available flight to Rome. The reservation was made for the evening of 4 April, but Sandro was not allowed to board the plane because he was in a wheelchair, and we lacked a medical certificate stating that he was able to fly, an airline requirement for wheelchair passengers (a requirement for which we had had no advance warning). We returned to the hotel and the following day I made flight reservations for the next flight, April 6. With the hotel manager's help, I found a good doctor who came to the hotel, examined Sandro carefully, diagnosed dehydration, predicted that the patient would be walking by the next day, and signed the required medical form for British Airways ("prognosis for travel: fair to good"). Unfortunately, Sandro's condition worsened during the night, apparently a consequence of a previously undiagnosed diabetic condition. With the help of the Italian Embassy, he was taken to the University Teaching Hospital the morning of April 6, where he passed away that afternoon. Sandro's death was a great tragedy for his family, and I lost a dear friend and collecting companion.

I first met Sandro on the Paris-Abijan plane in 1991. When preparing for my trip to the Ivory Coast, I wrote to him about my plans, and he expressed an interest in accompanying me. Having him with me was very fortunate because of his experience in tropical countries. Since that first trip, we have collected wasps together in Senegal (1991), Egypt and Mauritania (1993), and Madagascar (1994). The trip to Zambia was our sixth joint expedition.

Sandro was a very able, gentle, and cultured man. He was a medical doctor by training, and worked for the World Health Organization throughout his career. His responsibilities included public health and he traveled extensively all over the world supervising medical programs, helping build hospitals, and the like. His interest in entomology was inherited from his father, Alberto Mochi, who was a medical doctor in Cairo, Egypt (where Sandro was born), and who published several important papers on the Sphecidae of Egypt. After retiring from medicine, Sandro finally found enough time for entomology. On one of our trips, as we collected somewhere in the bush in the Ivory Coast, he told me "this is what I wanted to do

all my life". He was able to rebuild his father's collection of aculeates that had become dispersed after World War II. He knew sphecids quite well, although he published practically nothing on them. His gift of languages never stopped impressing me. In addition to his native Italian, he spoke English, French, German, and Arabic, all of them very well. When in Egypt in 1993, I witnessed his conversations with local people a few times. They would ask him "Enta Saudi?" (are you a Saudi?). They did not take him for a European because of his command of the language.

Sandro was also quite generous. The following example illustrates this well: we were driving east toward Nakhl on the Sinai Peninsula, and a soldier stopped us at an isolated control post. After a few routine questions he asked for water (it was very hot that day, and he had had nothing to drink). We did not have any spare water with us, but after collecting, Sandro drove to the city, bought an extra bottle of water, and handed it to the soldier on our way back. Sandro was equally generous with his entomological colleagues, sharing his experience and providing valuable material for study.

I shall miss him dearly.



## HELP NEEDED

I am in the process of describing new species of *Mischocyttarus* (Vespidae) and would like to hear from anyone who has borrowed the following specimens recorded by O.W. Richards in his Social Wasps of the Americas and deposited in the collection of The Natural History Museum (London). They are: the male of *M. naumanni* Richards and three males of a species close to *M. dimorphus* Zikan; all collected by Naumann at Limoncocha in Ecuador. I would also like to know the whereabouts of the unusual nest of *Agelaia* (= *Stelopolybia*) *cajennensis* (F) from Colombia which I described in a note in *Sphecos* 11.

**Martin Cooper**  
Hillcrest, Ware Lane  
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DT7 3EL, U.K.

## Information of *Pseudepipona herrichii*

I am currently researching the autecology of the eumenid wasp *Pseudepipona herrichii* at its only known locality in England, with a view to producing management guidelines to ensure the survival of this species at this locality (where it is currently abundant!) and to re-introduce it to other localities nearby. I am searching for information on the modern distribution and status of the wasp throughout its range, together with any bionomic information which is available.

I have been able to confirm most of the information given in G. M. Spooner's 1934 paper, including the nature of its prey, a Tortricid moth associated with all three species of heather present (*Erica cinerea*, *E. tetrad* and *Cabana vulgaris*). I am of the opinion that the population size of the wasp is limited by the availability of suitable bare ground patches. These are of a sandy clay nature and close to areas of open water or very damp heath. The wasp generally avoids the dry sandy heath. The wasps can be found drinking at the wet *Sphagnum* moss and the prey density seems to be higher in areas of wet heath, both factors which may explain the association of the nesting sites with wet areas.

I would be very grateful for any comments which readers can make upon this species.

**Mike Edwards**

Lea-side, Carron Lane,  
Midhurst, West Sussex  
GU29 9LB U.K.

## Field Sites in Africa

I am a graduate student interested in studying the genetic structure of colonies of African wasps, particularly *Polybioides* sp. My advisors, Joan Strassmann and Dave Queller have developed microsatellite DNA markers in several other species of wasps and I intend to use them in my research as well.

I am posting this message to ask for assistance in my search for a suitable field site in equatorial Africa at which to collect 20 to 40 *Polybioides* colonies. I would appreciate any leads that you could provide regarding potential locations and I am also looking for specific information regarding the Lamto field station in Cote d'Ivoire. From what I have heard, it is a good location logisti-

cally but I have been unable to confirm that *Polybioides* occurs there.

Thank you in advance for any help you can provide.

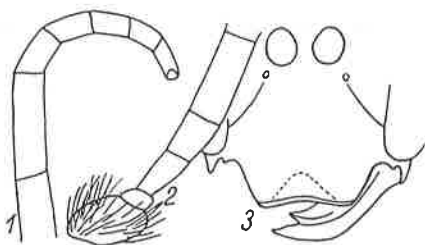
**Mike Henshaw**

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**Help Needed to  
Determine Species of *Prionyx***

Some years ago I caught two interesting males of *Prionyx* in S. W. Kazakhstan (Mangyshlak). This species is closely related to *P. radoszkowskii* and *P. subfuscatus*, but differs from them by features of the flagellum and clypeus. The last 5 flagellomeres are very short (fig. 1), and the 3rd flagellomere is equal to the 1st and 2nd ones combined (fig. 2). Flagellomeres 3 through 6 are long and each one has two keels on different sides. The body is black with the wings dark brown. The clypeus has a weak emargination on the front edge (fig. 3). The head and thorax are covered with long dense black hairs. Unfortunately I have no opportunity to study collections of Sphecidae in other countries and I cannot determine this species with keys in the literature. Can anybody identify this species for me?

**V.L. Kazenas**  
Zoological Institute  
Akademgorodok  
Alma-Ata 32  
Kazakhstan Republic



**NEWS FROM THE  
INTERNATIONAL  
SOCIETY OF  
HYMENOPTERISTS**

Jim Carpenter, who is currently president-elect, will assume the presidency in December, 1996. New officers of the

Society that also take over in December 1996 are: John Huber – treasurer (continuing); Jim Woolley – secretary; Andy Austin – president-elect. Andy Austin will be president during the Fourth Conference of the ISH in Canberra (see announcement elsewhere) in 1999.

Paul Marsh is stepping down as editor of the Journal of Hymenoptera Research after overseeing the production of 4 issues, and Eric Grissell will take over. Manuscripts should be sent to Eric at the following address: Systematic Entomology Laboratory, c/o U. S. National Museum of Natural History, Washington D.C. 20560.

The membership of the Society has voted to have two issues of the journal produced each year, but just when that will start is uncertain. Members have also approved the use of credit cards to pay for dues and other charges. That will probably be implemented soon.

**SOCIAL WASP  
NEWSLETTER**

*Wasp Times* is a "wasp research newsletter" published by Landcare Research, Private Bag 6, Nelson, New Zealand. *Vespula germanica* has become a serious pest in that country since its introduction, and *Wasp Times* is a vehicle for disseminating current information on control measures, success of parasites, sting allergy and treatment, and various other topics. There is even a little column titled "Fact File" in which you learn such things as the first recorded fatality from an insect sting (it was probably the Egyptian King Menes in 2621 BC). Issue 23 is dated December 1995 and numbers apparently appear about twice a year. An interesting and informative newsletter.

**INTRODUCED SOCIAL  
WASPS SPREADING IN  
NORTH AMERICA**

*Vespula germanica* (Fabricius): This wasp spread from the northeastern United States westward, reaching Washington State by 1989. In 1987 *germanica* had reached San Francisco, and workers were collected in Los Angeles County in 1991. It has spread eastward in southern California to Riverside Co. (Vetter, Visscher and Reiersen, 1995,

Pan-Pac. Ent. 71:246-248).

*Polistes dominulus* (Christ): Since its first capture in Massachusetts in 1980, this wasp has spread westward into Ohio and southwestward into New Jersey, and most recently into Maryland (1994, see Staines and Smith, 1995, Proc. Ent. Soc. Wash. 97:891).

***Polistes dominulus* in Maryland**

by

**Robert S. Jacobson**

P.O. Box 2164, Lenoir, NC 28645

In August, 1995, I was in Delaware and Maryland, and I found *Polistes dominulus* at the southbound I-95 rest area in Howard County, MD just north of Laurel. Several males and at least one female were seen, and I collected four of the former. They and many other wasps were on what appeared to be some kind of ornamental magnolia, infested with scale insects, located near the rest rooms and vending machines.

***Polistes dominulus* in Maine**

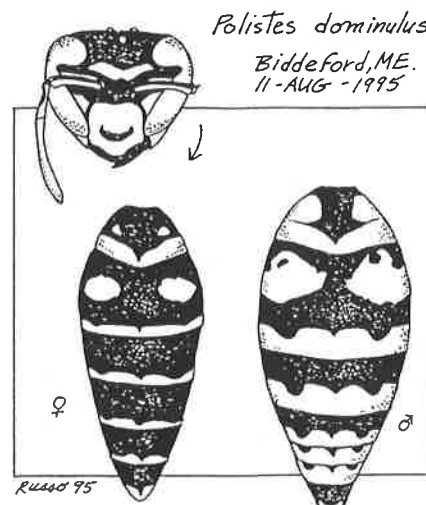
by

**Monica Russo**

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RR 4, Arundel  
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On 11 August 1995 I was collecting wasps in a patch of wild carrot (*Daucus*) and goldenrod (*Solidago*), along the weedy perimeter of a small shopping center in Biddeford, Maine.

Two wasps were netted which I initially thought were *Vespula*, and almost released. Upon a closer look it was evi-





dent they must be *Polistes* – but with too much yellow! We should only have *Polistes fuscatus* here. The markings appeared quite similar to a couple of Tunisian specimens of *P. dominulus* which Bob Jacobson (at Greer Labs) had previously sent me. I sent my Maine specimens off to him, and he did identify them as *P. dominulus* not yet reported in this state. Our latitude is 43°28". The female specimen, as can be seen from the drawings is rather dark.

Two more *P. dominulus* were collected on 13 August at the same site, and one more on 20 August.

On 2 September, while collecting at a large stand of Japanese knotweed (*Polygonum*), yet another specimen was taken. This site is about 1200 to 1500 feet from the first collecting area. One might suspect that this individual could have originated from a separate nest than the others.

Many thanks to Bob Jacobson for the samples and the identification.

## SCIENTIFIC NOTES

### An Interesting Hunting Tactic of *Stictia punctata* (Fabr.) and Other Observations on the Hunting Behavior of Bembicini Wasps (Sphecidae: Nyssoninae)

by

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During the summer of 1987 I spent my vacation at a small beach village, Arraial d'Ajuda, about 10 km south of Porto Seguro, in Bahia State, Brasil. At various sites at that locality, I observed the hunting behavior of a number of species of Bembicini. During my daily walk to or from the beach I often stopped to watch these wasps hunting. Many times I observed individuals of

*Rubrica nasuta*, *Stictia punctata*, *S. signata* and *Bicyrtes* sp. hovering above and in front of garbage and intermittently throwing themselves towards the flies on the debris. They maintained a good distance from the garbage, 1.5 or more meters, hovering at about 1 to 1.5m above the ground, diving directly at anything that moved that was the size of a fly; when unsuccessful they frequently returned to the same "hovering aerial space". They are so fast that sometimes it seems that they would catch flies in wind. It was curious to see the way the wasps shared the aerial space around the garbage. On some days I could see 10 or more wasps flying around the same "hunting field", each one hovering in its own aerial space. As a rule, the wasps attacked any flying insect that approached their aerial space, including other wasps. I also noted that the first action for a wasp after arriving was to take up one particular aerial space and to remain there until she left for her nest or was displaced by another wasp.

Besides those behaviors, I observed a very interesting hunting tactic exhibited by some females of *Stictia punctata* that really amazed me. During my walks along the seashore, I had lunch on the beach in hut-like bars with wooden tables placed directly over the sand. Besides tourists, those paradisiacal places were visited by hungry *Muscomorpha* looking for small bits of fried shrimp or fish that eventually dropped off the table. The Bembicini in the neighborhood (various species of *Rubrica*, *Microbembex*, *Bicyrtes* and *Stictia*) were well acquainted with these tables and the surroundings were visited by flies. On one sunny afternoon, between 13:00 and 14:00 hours, I was lazily tasting some fried shrimp when I noted a loudly buzzing wasp flying in a very peculiar way around a table just in front of me. She flew facing the table and moved laterally, left and right, always hovering below the upper surface of the table. At intervals, she would quickly rise above the table surface and promptly return below it. When she detected a fly on the table, she immediately backed down and flew to a point closest to her prospective prey, doing so below the upper surface of the table and out of view of the fly. Reaching the closest point to the fly, she quickly rose above the table, dove straight at the fly, grasped it with her legs and flew away carrying her prey.

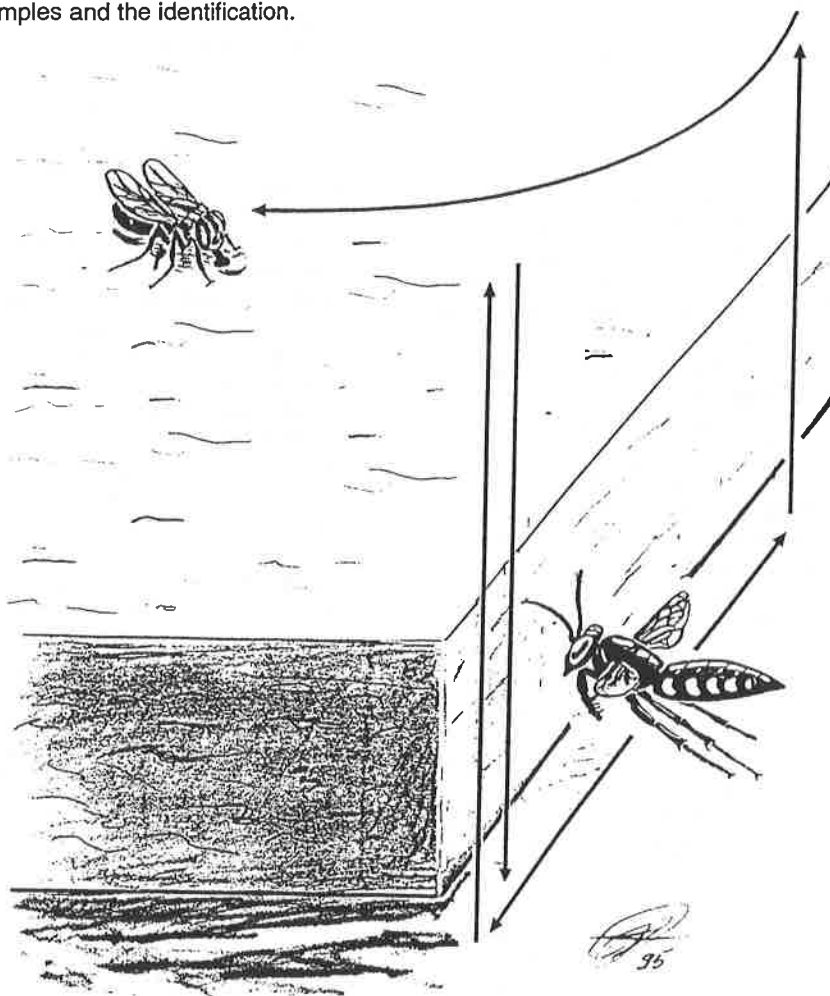


Fig. 1. Schematic illustration of the hunting tactics of *Stictia punctata*. The arrows represent the approximate movements of the wasp.

After that, I started to watch these creatures with increasing interest, and I noted that this was a frequent behavior, but only by females of *Stictia punctata*.

#### Notes on Neotropical *Polistes* (Vespidae).

by

**M. Cooper**

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**Sylvan *Polistes*.** In forests *Polistes* are usually found only at the edge of clearings or secondary growth. The only species whose nests I have found in the understory of lowland primary forest and which may thus be true sylvan species are: *P. claripennis* (Ducke) (1 nest. Colombia: Amazonas), *P. bicolor* Lepageletier (2 nests. Colombia: Arauca and Ecuador: Morona-Santiago) and *P. deceptor* Schulz (1 nest. Ecuador: Napo) – the last is essentially a species of the premontane zone. I have taken males of *P. rufiventris* Ducke in primary forest at the same locality as *P. deceptor* but the two nests that I have found of this species (Colombia: Amazonas) were both in secondary growth attached to shrubs occupied by ants.

***P. melanotus* Richards.** The only precise locality record for this species is "Monte Redondo 1,400 m in the Colombian department of Cundinamarca (Richards, O.W. 1978, The social wasps of the Americas). The botanist Dr. J. Idrobo informs me that this locality is "al lado de la carretera Bogota-Villavicencio, frente a Guayabetal". (At the side of the Bogota-Villavicencio road opposite Guayabetal). This site is in the foothills of the eastern slope of the Andes.

#### Addendum to note on a stridulating sphecoid.

by

**M. Cooper**

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After examining type material of the two described species of *Pterygorytes* I can identify with certainty the stridulating sphecoid of my note in Sphecos 24 as *P. triangulum* (F. Smith). At my request Dr. Gess has re-examined specimens of the related genus *Handlirschia* in his care and confirmed that this genus has no stridulatory organ.

#### The First Record of the Family Sclerogibbidae (Hymenoptera: Chrysididae) from Colombia

by

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Pizano S.A., Santafé de Bogotá, Colombia  
and

**Giovanni A. Ulloa D.**

Monterey Forestal Ltda., Cartagena,  
Colombia

The family Sclerogibbidae is one of the lesser known groups of Hymenoptera. Although Carpenter (1988) established its phylogenetic position, little is known about the biology of its members. Seven genera are recognized and about 10 species (Argaman 1988), whose larvae are ectoparasitic on Embioptera nymphs (Callan 1939, Shetlar 1973, Goulet & Huber 1993). Richards (1939) and Argaman (1988) have devised keys for the known genera and species.

*Probethylus* Ashmead is the only genus present in the New World, and it contains three species: *P. callani* Richards, 1939 (male and female from Trinidad and Mexico), *P. mexicanus* Richards, 1939 (males from Mexico and Argentina) and *P. schwarzi* Ashmead, 1902 (male and female from Arizona, USA). In the Neotropical region, records are very poor and scattered, and for continental South America only one male of *P. mexicanus* is known (Argaman 1988).

During the last 3 years we have been studying the insect fauna of the tropical dry forest and agrosystems in the Zambrano (Bolívar, Colombia) region. Many samples have been obtained from Malaise, pitfall, Berlese and other traps. Preliminary analysis of these samples has shown the presence of complex and rich faunas (e.g. ants, Molano *et al.* 1995) and many new records for the country (e.g. Dryinidae, Olmi, personal communication).

A female of *P. callani* was collected in a Malaise trap (No. 4, Chile, Oct. 21, 1993) in a fragment of secondary forest dominated by *Tabebuia* and *Astronium*. The specimen shows some variation in size and color from Richard's description (1939) but we believe that this is not enough to consider it a different species. It is interesting that this apterous insect was collected in a trap for

flying insects. It probably climbed up the net from the soil as do several genera of ants found in the traps.

This is the first record of this family for Colombia and the South America tropics, and this is the first female collected in continental South America. The absence of records for the Neotropics is probably due both to a specialized lifestyle and a scarcity of individuals. On the other hand, short-term field collections are inadequate for sampling this group. We expanded our collecting to two years of continuous sampling of over 2,000 acres in order to obtain this specimen.

Today the tropical dry forest is one of the less common but threatened forests in Colombia. Human activities have reduced vast areas to small, discontinuous patches. However, they still sustain rich faunas that add promise to proposals for their management and conservation.

We wish to thank Arnold Menke and Jim Carpenter and Biol. L. Schneider for providing us the literature references.

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# **New Records of Vespid Wasps from the Carolinas and Kentucky**

by

**Robert S. Jacobson**

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*Dolichovespula norvegicoides* (Sladen): SOUTH CAROLINA: Sassafras Mountain, 1 male. To the best of my knowledge this is a new state record.

*Vespula acadica* (Sladen): NORTH CAROLINA: Carvers Gap vicinity near Roan Mountain, 4 queens on flowers of *Vaccinium*. This is only the second record from the state (see *Sphecos* 20:21-22 for other records from the Richland Balsam Lookout). Because the new record is only some 300 meters from the Tennessee state line, where similar vegetation at the same elevation occurs, its presence there is a virtual certainty although my searching hasn't yet been fruitful.

*Vespula consobrina* (Saussure): KENTUCKY: Harlan County, summit of Black Mountain; numerous queens visiting flowers of *Vaccinium* (25.v.1996).

## **Some Newly Recognized Holarctic Species of Sphecidae**

by

**A.S. Menke**

Modern studies of the New and Old World fauna's have revealed the presence of holarctic species in some genera. This has resulted in the synonymy of some North American names under European ones. To bring these to the attention of North American workers, I have listed some of these changes below. The *Crossocerus* information comes from Bitsch and Leclercq, 1993, *Hyménoptères Sphecidae d'Europe Occidentale*, vol. 1. Faune de France 79:1-325. The *Pemphredon* names are from Dollfuss, 1995, *Linzer biol. Beitr.* 27:905-1019.

*Crossocerus leucostoma* (Linnaeus), 1758 (*Sphex*); widespread in palearctic, transcontinental in Canada and the northern U.S.

*cinctipes* Provancher, 1882

(*Blepharipus*); synonymized by B&L 1993, including synonyms listed by B&M 1976.

*Crossocerus nigrinus* (Lepelletier & Brullé), 1835 (*Blepharipus*); widespread palearctic, transcontinental

in North America

*nigricornis* Provancher, 1888, (*Blepharipus*), synonymized by B&L 1993.

*Crossocerus tarsatus* (Shuckard), 1837 (*Crabro*); widespread in palearctic, transcontinental in North America.

*planipes* Fox, 1895 (*Crabro*), synonymized by B&L 1993 including synonyms listed by B&M 1976.

*Pemphredon lugubris* (Fabricius), 1793 (*Crabro*); palearctic and transcontinental in North America

*concolor* Say, 1824, synonymy by Dollfuss, 1995 including synonyms listed by B&M 1976.

*Pemphredon rugifer* (Dahlbom), 1844

(*Cemonus*); palearctic and eastern U.S.

*bipartitor* Fox, 1892, synonymy by Dollfuss, 1995 including synonym listed by B&M 1976.

## ***Sphecius spectabilis* (Taschenberg) in Colombia**

by

**A. S. Menke**

Records of the single South American species of *Sphecius* are few. *S. spectabilis* was described from "Brasil-ia" by Taschenberg (1875), although Handlirsch (1889:464) inexplicably said the type locality was Santiago del Estero in Argentina. Handlirsch also had material from Paraguay. A single male of this wasp from Bolivia is in the National Museum of Natural History in Washington D.C. The locality on the label is undecipherable. Brèthes (1910: 281) described the variety *nobilis* from Chacras de Coria, Mendoza Prov., Argentina; the status of this taxon is unclear at present.

During his recent visit in Washington, Fernando Fernández brought a female of this wasp collected in Colombia at Gaviotas in Dpto. Vichada. This is in the Orinoco Basin of eastern Colombia. This record extends the distribution of *spectabilis* considerably northward and suggests that the species is probably widespread in South America, at least at lower elevations along the eastern side of the Andes, although uncommonly collected.

*Sphecius spectabilis* is largely black but terga I-II of the gaster have large yellow maculations laterally. The clypeus and pronotal lobe are also yellow maculated. Taschenberg's material also

had yellow on the scutellum and metanotum. Brèthes' variety *nobilis* was based on material with reduced yellow: the scutellum was black (as in the Bolivian and Colombian specimens I have seen). It is likely that the degree of yellow maculation varies.

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Taschenberg, E., 1875. *Nyssonidae und Crabronidae des zoologischen Museums der hiesigen Universität*. Zeitschr. Ges. Naturwiss. Halle 45: 359-409.

## **Mutillidae of Paraguay**

by

**Diomedes Quintero A.**

and

**Roberto A. Cambra T.**

Museo de Invertebrados G. B. Fairchild, Estafeta Universitaria, Universidad de Panamá, Panamá, PANAMÁ

Paraguay is a landlocked republic, divided into two sections by the Paraguay river: a western region (Region Occidental, Chaco), 246,925 km<sup>2</sup>, sparsely populated and occupying 60.7% of the surface of the country, and an eastern region (Region Oriental), with 159,827 km<sup>2</sup>, and more than 97% of the population of the country. The vegetation and land usage of these two distinctly different ecosystems has been reviewed (see references, under Paraguay). In addition to the recent headline news about political unrest in Paraguay, we have read in the news about the strong polemic between environmentalists and business entrepreneurs concerning the radical plan to link two landlocked countries (Bolivia and Paraguay) via an Atlantic waterway expansion project ("Hidrovia" in Spanish), a 2,000 mile waterway connecting ports of Argentina, Bolivia, Paraguay and the west Brazilian town of Cáceres. Large parts of the Paraguayan Oriental forests are being cut down rapidly, under the ever increasing pressures of urban and agricultural development. We know very little about many of the insect groups from Paraguay and, if the present trend

is continued, we have only a few years left to learn about them before most of their natural habitats are drastically modified.

Thanks to the great help from Bolívar Rafael Garcete B. (Museo Nacional de Historia Natural, Sucursal 1 Campus, Ciudad Universitaria, Central XT, San Lorenzo), and the excellent policy developed by John A. Kochalka, to provide loans to those that request them, we have been able to examine 336 specimens of Mutillidae from Paraguay, in two loans, received in 1995 and 1996. Although it is a small sample, and the larger territory of the Occidental region remains poorly sampled (with only 7 out of the 23 localities sampled), examination of this material has resulted in a near tripling of the number of species of Mutillidae known from Paraguay, from 51 previously known (André 1910; Nonveiller 1990; Fritz 1990; Fritz & Pagliano 1993) to the 134 species listed below (including a total of 26 morphospecies of *Pseudomethoca*, *Sphaerophthalma*, *Traumatomutilla*). Included in the total of 51 mutillid names, previously reported as present in Paraguay, are the following three "Incertae Sedis" names (Nonveiller 1990): *Mutilla alacris* André, 1901, female, *Mutilla hoplitiformis* Strand, 1909, female, and *Mutilla* (*Photopsis*) *paraguayensis* André, 1901, male. We have examined two specimens from Boqueron, Parque Nacional Teniente A. Enciso, Zona Administrativa, Aug 1994, and determined them as *Sphaerophthalma* (*Photopsis*) *paraguayensis* (André, 1901), NEW COMBINATION.

Although we have not seen André's holotype material of *paraguayensis*, it was collected on the Chaco at near the same latitude as the two additional males we report here. In addition, the meticulous description given by André (1901) permits us to recognize the following diagnostic features: absence of a ventral, basal tooth on the mandibles, the nearly smooth integument of the head (with very small punctures), and the distinctive coloration of the integument and pubescence. It is the only nocturnal mutillid described from Paraguay. We have recognized two additional species of *Sphaerophthalma* (*Photopsis*) that will be described in a separate publication.

The majority of the specimens reported here were collected by Bolívar Garcete, both manually and with yellow pans filled with detergent water.

Abbreviations for localities (marked on map; localities R and V were not found):

#### 1. Occidente – Chaco:

- (A): Alto Paraguay, Palmar de las Islas, Estancia San José, Sep 1994
- (B): Boquerón, Gral. Eugenio A. Garay, Jun 1995
- (C): Boquerón, Parque Nacional Teniente A. Enciso, Zona Administrativa, Aug 1994
- (D): Pdte. Hayes, Cruce los Pioneros, Jan 1996
- (E): Pdte. Hayes, Transchaco Hwy km 438, Dec 1993
- (F): Pdte. Hayes Río Confuso, Ruta Transchaco, Oct Dec 1993, Feb Oct 1995
- (G): Pdte. Hayes, Monte Lindo, Nov 1993

#### 2. Oriente:

- (H): San Pedro, Gral. Resquin, Naranjito, Dec 1995
- (I): Paraguari, Compañía, Naranjo, Feb 1996
- (J): Caazapá, San José, Cristal [en alrededores Reserva Ecológica Coaguazú], Dec 1995

- (K): Canindeyu, Reserva Natural del Bosque, Mbaracayú, Puesto Lagunita, Sep 1995
- (L): Canindeyu, Cerrito Cruce Sta. Rosa, Sep 1995
- (N): Concepción, Cororo, Nov 1995
- (O): Cordillera, [campamento Lack Novenart] Caacupé, Oct 1994
- (P): Paraguari, Parque Nacional [Monumento Natural] Ybycuí, Oct 1994, Jan Feb 1995, Jan 1996
- (Q): Paraguari, Cerro Acahay, Jan 1996
- (R): Concepción, Costa Romero, Oct 1985.
- (S): Central, Capiatá, Oct 1993
- (T): Central, San Lorenzo, Jun 1994
- (U): San Pedro, Liberación, Jan 1994
- (V): Guaira, Roque Gonzalez, Jan 1995
- (X): Itapúa, Isla Yacyreta, Jan 1993
- (Y): Alto Paraná, Reserva Biológica [Golondrina, privada] del Río Monday, Oct 1989

\* species reported for the first time from Paraguay

\*\* genus reported for the first time from Paraguay

F: females M: males. Number before each sex represent the total number of specimens we have examined from Paraguay





## SPHAEROPHTHALMINAE

- Atillum captiosum* Mickel, 1943 1F (R)  
*Atillum hirsutum* Mickel, 1943 3F (D)  
*Atillum mitratum* Mickel, 1943 M  
 \**Atillum ornamentum* Mickel, 1943 1F (B)  
*Atillum stygium* Mickel, 1943 M F  
 \**Cenhalomutilla albicalcaris* Mickel, 1960 11F (D)  
 \**Cenhalomutilla confluenta* Mickel, 1960 1F (D)  
*Cenhalomutilla distincta* Mickel, 1960 5F (D), (I)  
 \**Darditilla ameliae* (Casal), 1968 2F (H)  
 \**Darditilla aurolineata* (André), 1907 3F (D)  
 \**Darditilla buonae* (Casal), 1968 2F (D)  
 \**Darditilla delpontei* (Casal), 1968 9F (H), (I), (N)  
 \**Darditilla hepperi* (Casal), 1968 1F (I)  
 \**Darditilla infantilis* (Burmeister), 1875 3F (H), (N)  
 \**Darditilla maurii* (Casal), 1968 1F (D)  
 \**Darditilla mita* (Casal), 1968 8F (D)  
*Darditilla vianai* (Casal), 1968 14F (D), (H)  
*Hoplocrates monacha* (Gerstaecker), 1874 3F (H)  
*Hoplomutilla limata* (André), 1906 F  
*Hoplomutilla myops flavimyops* Mickel, 1939 F  
*Hoplomutilla spinosa* (Swederus), 1787 1F (P)  
*Hoplomutilla triumphans* Mickel, 1939 F  
 \*\**Horcomutilla glabriceps* (André), 1908 1F (D)  
 \*\**Horcomutilla piala* Casal, 1970 1F (E)  
 \*\**Horcomutilla ypane* Fritz, 1992 2F (S), (T)  
*Leucospilomutilla staurogastra* Suárez, 1973 F  
*Lophomutilla obscura* Fritz & Pagliano, 1993 2F (H)  
 \*\**Lophostigma seabrai* Casal, 1963 2F (U), (V)  
 \*\**Lynchiatilla hoplites* (Gerstaecker), 1874 3F (N)  
*Pertyella aguaz* Fritz, 1990 F  
*Pertyella guarani* Fritz & Pagliano, 1993 F  
*Pertyella uzai* Fritz, 1990 1F (U)  
 \**Pertyella yarrowi* Casal, 1967 1F (F)  
*Pertyella* sp. 1M (I)  
 \**Pseudomethoca* (= *Sphinctopsis*) *candela* (Casal), 1973 1F (U)  
 \**Pseudomethoca* (= *Sphinctopsis*) *cerasina* (Gerstaecker), 1874 3F (D)  
 \**Pseudomethoca credula* (Cresson), 1902 2F (F)  
 \**Pseudomethoca* (= *Sphinctopsis*) *ichila* (Casal), 1970 13F (K), (N), (I)  
*Pseudomethoca vera* (Cresson), 1902 F

- Pseudomethoca* spp. (7 different morpho-species) 1F, 18M (H), (P), (Q), (F), (E), (X)  
*Ptilomutilla pennata* André, 1905 F  
*Scaptodactyla gracilescens* (Smith), 1879 M  
*Sphaerophthalma* (*Photopsis*) *paraguayensis* (André), 1901 2M (C). NEW COMBINATION from *Mutilla* (*Photopsis*) *paraguayensis* André  
*Sphaerophthalma* (*Photopsis*) spp. (2 morpho-species) 2M (G), (Y)  
*Suareztilia bimaculata* (André), 1906 2M (I)  
*Suareztilia calcycina* (Gerstaecker), 1874 F  
*Suareztilia centrolineata* (André), 1906 F  
 \**Suareztilia leucotaenia* (E. Lynch-Arribalzaga), 1878 7F (D), (I)  
 \**Tallium disjunctum* (Gerstaecker), 1874 5F (H), (I)  
*Tallium empyreum* (Gerstaecker), 1874 42F (D), (H), (I), (N)  
 \**Tallium precarium* Suárez, 1960 2M (I)  
 \**Tallium puelche* Casal, 1962 3F (D)  
*Tallium sordidulum* (Smith), 1879 M  
 \**Tallium tenebrosum* (Gerstaecker), 1874 10M (P), (S), (F)  
 \**Tallium torresi* Casal, 1962 1F (E)  
 \**Tallium ulape* Casal, 1962 4F (I)  
 \**Traumatomutilla bispiculata* André, 1907 1F (D)  
*Traumatomutilla bivittata rubroquittata* André, 1901 F  
 \**Traumatomutilla borba* (Cresson), 1902 4F (I)  
 \**Traumatomutilla bruchi* André, 1908 2F (D)  
*Traumatomutilla caipira* Casal, 1969 F  
 \**Traumatomutilla caneta* (Cresson), 1902 3M (I), (P)  
*Traumatomutilla chasca* Casal, 1969 F  
*Traumatomutilla chilca* Casal, 1969 1F (P)  
*Traumatomutilla duplicata* (Gerstaecker), 1874 F  
 \**Traumatomutilla funesta* ? (Gerstaecker), 1874 3M (I)  
*Traumatomutilla graphica* (Gerstaecker), 1874 1F (P)  
 \**Traumatomutilla gurisa* Casal, 1969 5F (D)  
*Traumatomutilla immaculiceps* André, 1901 11F (I)  
 \**Traumatomutilla miniata* (Gerstaecker), 1874 2F (D)  
*Traumatomutilla moesta* (Gerstaecker), 1874 F  
*Traumatomutilla parallela* (Klug), 1821 F  
*Traumatomutilla quadrum* (Klug), 1821 F  
 \**Traumatomutilla sancta* (Gerstaecker), 1874 1F (I)

- \**Traumatomutilla taboca* ? (Cresson), 1902 1M (Q)  
 \**Traumatomutilla trochantera* (Gerstaecker), 1874 2F (P)  
*Traumatomutilla vitelligera* {Gerstaecker}, 1874 F  
*Traumatomutilla* spp. (17 different morpho-species) 44F, 6M (D), (H), (I), (K), (N), (O), (P), (B), (T), (U), (A), (X)  
 \*\**Xystromutilla cornigera* (Cresson), 1902 1F (J)  
 \*\**Xystromutilla krombeini* Suárez, 1960 1F (D)  
 \*\**Xystromutilla montera* Casal, 1969 1F (D)

## MUTILLINAE

- \**Ephuta capuera* Casal, 1968 1F (U)  
*Ephuta charrasca* Casal, 1968 M  
*Ephuta cingulifera* (André), 1908 M  
 \**Ephuta guampa* ? Casal, 1968 2M (K)  
 \**Ephuta indaiala* Casal, 1969 1F (H)  
 \**Ephuta mampa* Casal, 1968 1M (H)  
 \**Ephuta rubrocincta* Mickel, 1952 1M (L)  
*Ephuta sayana* Casal, 1968 2M (P)  
 \**Ephuta umbratica* (Gerstaecker), 1874 1F (N)  
*Ephuta* spp. (5 different morpho-species) 12F, 6M  
*Timulla bilineatella* Mickel, 1938 1F (A)  
*Timulla daucia* Mickel, 1938 F  
*Timulla eris* Mickel, 1938 F  
 \**Timulla exclamatoris* (Cresson), 1902 1F (N)  
*Timulla fiebrigi* Mickel, 1938 1F (S)  
*Timulla galatea* Mickel, 1938 F  
 \**Timulla lineoloides* Mickel, 1938 1F (K)  
*Timulla manni* Mickel, 1938 1F (F)  
*Timulla nasica* Mickel, 1938 1M (P)  
*Timulla pyrene* Mickel, 1938 M, F  
 \**Timulla rufiventris* (Klug), 1821 1M (H)  
*Timulla scoparia* (Gerstaecker), 1874 3F, M (H), (I), (P)  
 \**Timulla spiniclypeata* Mickel, 1938 5F (K), (N)  
 \**Timulla spoliatrix* Mickel, 1938 1M (S)  
*Timulla sulcata* Mickel, 1938  
 \**Timulla togatula* ? Mickel, 1938 2M (X)

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#### Digger Wasps (Hymenoptera, Sphecidae) of Ukrainian Polesye.

by

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Polesye occupies the northern part of the Ukraine. The area of this region is 113,500 sq. km, which is 19% of the total area of the country. Polesye is characterized by lowlands, wide and swampy river valleys, high levels of ground water and widely distributed pine forests in addition to some deciduous. The climate is continental-moderate, with warm and damp summers and mild winters.

We have investigated the digger wasps of this region for more than 15 years. At the present time the list of Sphecidae from the Ukrainian Polesye contains 192 species.

The material is stored in the collections of the Nezhin Pedagogical Institute, the Department of Zoology, Kiev Shevchenko's University and the Institute of Zoology of NAS of Ukraine.

*Sceliphron destillatorium* (Illiger)

*Sphex rufocinctus* Brullé

*Prionyx nudatus* (Kohl)

*Podalonia affinis* (Kirby)

*Podalonia hirsuta* (Scopoli)

*Podalonia luffi* (Saunders)

*Podalonia tydei* (Guillou)

*Ammophila campestris* Latreille

*Ammophila pubescens* Curtis

*Ammophila sabulosa* (L.)

*Ammophila sareptana* Kohl

*Ammophila terminata* Smith

*Mimesa bicolor* (Jurine)

*Mimesa bruxellensis* Bondroit

*Mimesa caucasica* Maidl

*Mimesa equestris* (F.)

*Mimesa lutaria* (F.)

*Mimesa nigrita* Eversmann

*Mimesa vindobonensis* Maidl

*Mimumesa atratina* (F. Morawitz)

*Mimumesa beaumonti* (van Lith)

*Mimumesa dahlbomi* (Wesmael)

*Mimumesa littoralis* (Bondroit)

*Mimumesa spooneri* (Richards)

*Mimumesa unicolor* (v.d. Linden)

*Psen ater* (Oliver)

*Psenulus concolor* (Dahlbom)

*Psenulus fuscipennis* (Dahlbom)

*Psenulus laevigatus* (Schenk)

*Psenulus meridionalis* de Beaumont.

*Psenulus pallipes* (Panzer)

*Psenulus schencki* (Tournier)

*Diodontus luperus* Shuckard

*Diodontus medius* (Dahlbom)

*Diodontus minutus* (F.)

*Diodontus tristis* (v.d. Linden)

*Pemphredon austriaca* (Kohl)

*Pemphredon flavistigma* Thomson

*Pemphredon inornata* Say

*Pemphredon lethifer* (Shuckard)

*Pemphredon lugens* Dahlbom

*Pemphredon lugubris* (F.)

*Pemphredon montana* Dahlbom

*Pemphredon morio* v.d. Linden

*Pemphredon rugifera* (Dahlbom)

*Passaloecus corniger* Shuckard

*Passaloecus eremita* Kohl

*Passaloecus gracilis* (Curtis)

*Passaloecus insignis* (v.d. Linden)

*Passaloecus monilicornis* Dahlbom

*Passaloecus singularis* Dahlbom

*Stigmus pendulus* Panzer

*Stigmus solskyi* A. Morawitz

*Spilomena troglodytes* (v.d. Linden)

*Ammoplanus hofferi* Snoflak

*Astata boops* (Schränk)

*Astata minor* Kohl

*Dryudella pinguis* (Dahlbom)

*Dryudella stigma* (Panzer)

*Dryudella tricolor* (v.d. Linden)

*Dinetus pictus* (F.)

*Tachytes panzeri* Dufour

*Tachysphex coriaceus* (A. Costa)

*Tachysphex helveticus* Kohl

*Tachysphex nitidior* de Beaumont

*Tachysphex nitidus* (Spinola)

*Tachysphex obscuripennis* Schenck

*Tachysphex pompiliiformis* (Panzer)

*Tachysphex psammobius* (Kohl)

*Tachysphex unicolor* (Panzer)

*Palarus variegatus* (F.)

*Miscophus ater* Lepeletier

*Miscophus bicolor* Jurine

*Miscophus concolor* Dahlbom

*Miscophus spurius* Dahlbom

*Nitela borealis* Valkeila

*Nitela fallax* Kohl

*Trypoxylon attenuatum* F. Smith

*Trypoxylon clavicerum* Lepeletier & Serville

*Trypoxylon deceptorium* Antropov

*Trypoxylon figulus* (L.)

*Trypoxylon fronticorne* Gussakovskij

*Trypoxylon kolazyi* Kohl

*Trypoxylon medium* de Beaumont

*Trypoxylon minus* de Beaumont

*Oxybelus argentatus* Curtis

*Oxybelus bipunctatus* Oliver

*Oxybelus latro* Oliver

*Oxybelus lineatus* (F.)

*Oxybelus maculipes* F. Smith

*Oxybelus mandibularis* Dahlbom

*Oxybelus mucronatus* (F.)

*Oxybelus quattuordecimnotatus* Jurine

*Oxybelus subspinosus* Klug

*Oxybelus trispinosus* (F.)

*Oxybelus unigumis* (L.)

*Oxybelus variegatus* Wesmael

*Oxybelus victor* Lepeletier

*Entomognathus brevis* (v.d. Linden)

*Lindenius albilabris* (F.)

*Lindenius panzeri* (v.d. Linden)

*Lindenius pygmaeus armatus*

(v.d. Linden)

*Rhopalum clavipes* (L.)

*Rhopalum coarctatum* (Scopoli)

*Crossocerus annulipes* (Lepeletier &

Brullé)

*Crossocerus assimilis* (Smith)

*Crossocerus capitatus* Shuckard

*Crossocerus cetratus* (Shuckard)

*Crossocerus congener* (Dahlbom)

*Crossocerus dimidiatus* (F.)

*Crossocerus distinguendus*

(A. Morawitz)

*Crossocerus elongatulus* (v.d. Linden)

*Crossocerus exiguus* (v.d. Linden)

*Crossocerus megacephalus* (Rossi)

*Crossocerus nigritus* (Lepeletier & Brullé)  
*Crossocerus ovalis* Lepeletier & Brullé  
*Crossocerus podagricus* (v.d. Linden)  
*Crossocerus pusillus* (Lepeletier & Brullé)  
*Crossocerus quadrimaculatus* (F.)  
*Crossocerus tarsatus* (Shuckard)  
*Crossocerus vagabundus* (Panzer)  
*Crossocerus walkeri* (Shuckard)  
*Crossocerus wesmaeli* (v.d. Linden)  
*Crabro cribrarius* (L.)  
*Crabro maeklini* A. Morawitz  
*Crabro peltarius* (Schreber)  
*Crabro scutellatus* (Scheven)  
*Lestica alata* (Panzer)  
*Lestica clypeata* (Schreber)  
*Lestica subterranea* (F.)  
*Ectemnius cavifrons* (Thomson)  
*Ectemnius cephalotes* (Oliver)  
*Ectemnius continuus* (F.)  
*Ectemnius dives* (Lepeletier & Brullé)  
*Ectemnius fossorius* (L.)  
*Ectemnius guttatus* (v.d. Linden)  
*Ectemnius lapidarius* (Panzer)  
*Ectemnius meridionalis* (A. Costa)  
*Ectemnius rubicola* (Dufour & Perris)  
*Ectemnius ruficornis* (Zett.)  
*Ectemnius rugifer* (Dahlbom)  
*Ectemnius sexcinctus* (F.)  
*Ectemnius spinipes* (A. Morawitz)  
*Mellinus arvensis* (L.)  
*Mellinus crabroneus* (Thunberg)  
*Alysson jaroslavensis* Kokujev  
*Alysson spinosus* (Panzer)  
*Didineis clavimana* (Gussakovskij)  
*Didineis wuestneii* Handlirsch  
*Nysson dimidiatus* Jurine  
*Nysson interruptus* (F.)  
*Nysson maculosus* (Gmelin)

*Nysson spinosus* (J. Forster)  
*Nysson quadriguttatus* Gerst  
*Nysson trimaculatus* (Rossi)  
*Brachystegus scalaris* (Illiger)  
*Argogorytes fargei* (Shuckard)  
*Argogorytes mystaceus* (L.)  
*Harpactus elegans* (Lepeletier)  
*Harpactus laevis* (Latreille)  
*Harpactus lunatus* (Dahlbom)  
*Harpactus moravicus* (Snoflak)  
*Harpactus tumidus* (Panzer)  
*Gorytes albidulus* (Lepeletier)  
*Gorytes fallax* Handlirsch  
*Gorytes laticinctus* (Lepeletier)  
*Gorytes procrustes* Handlirsch  
*Gorytes quadrifasciatus* (Panzer)  
*Gorytes quinquecinctus* (F.)  
*Gorytes quinquefasciatus* (Panzer)  
*Lestiphorus bicinctus* (Rossi)  
*Bembecinus tridens* (F.)  
*Bembex rostrata* (L.)  
*Philanthus coronatus* (Thunberg)  
*Philanthus triangulum* (F.)  
*Philanthus venustus* (Rossi)  
*Cerceris albofasciata* (Rossi)  
*Cerceris angustirostris* Shestakov  
*Cerceris arenaria* (L.)  
*Cerceris eryngii* Marquet  
*Cerceris flavescens* Schletterer  
*Cerceris flavilabris* (F.)  
*Cerceris hortivaga* Kohl  
*Cerceris interrupta* (Panzer)  
*Cerceris quadricincta* (Panzer)  
*Cerceris quadrifasciata* (Panzer)  
*Cerceris quinquefasciata* (Rossi)  
*Cerceris rubida* (Jurine)  
*Cerceris ruficornis* (F.)  
*Cerceris rybyensis* (L.)  
*Cerceris sabulosa* (Panzer)  
*Cerceris somotorensis* Balthasar

## COLLECTING REPORTS

### Collecting in southern California, Arizona, southern Nevada, 1995-style.

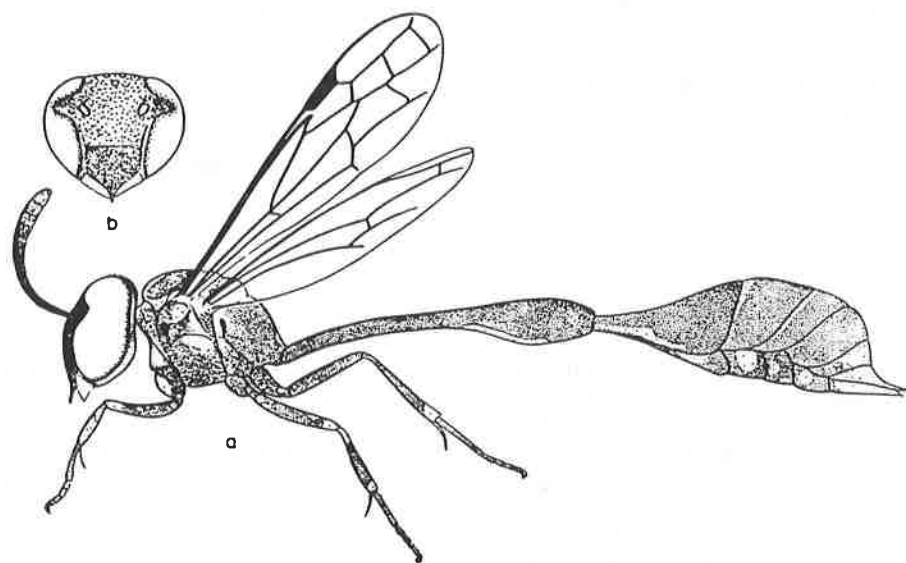
by

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In a single word: awful! Plenty of rain, should have been good. But, at the critical period, Feb.-May, unseasonal storms rolled across the desert, usually just a few days apart. They brought rain and wind. Many flowers bloomed, inspired no doubt, by the few warm days between storms. The Aculeata, on the other hand, seemed to know that something was **not as it should be** and didn't bother to show up. In mid-June, on another trip, my first night out I got rained on. Not a lot, but enough to be miserable. Three days later it was worse! Wet, cold, windy. I did luck-out and collect a few females of *Euparagia boregoensis* for Volker Mauss to rip apart. I just hope he appreciates what I went through to get them.

Ever the optimist, however, I am leaving tomorrow (20 Aug.) for southern Arizona, mainly to collect a presently undescribed species of *Hesperapis* (a really cute little critter) on prostrate *Euphorbia* (now *Chamaesyce*) in the Willcox area of Arizona. Even though that is a bee (or fuzzy wasp, if you care to look at it that way), I would expect to collect other things on the *Chamaesyce* as well, as part of the on-going project my son and I initiated a couple of years ago. This year, even the *Chamaesyce* collecting at our primary site in the Mojave Desert generated poor collecting. As an example, the first year, the little mutillid, *Lomachaeta hicksi* Mickel, was common and we got plenty of material of both sexes. This year, I found a few females, not a single male. About the only thing that seemed to be unchanged, was the chrysidids: they remained plentiful this year. So far, we have about 90 species of aculeates at the primary site most of which seem to be regular associates of the *Chamaesyce*. I'll be interested in seeing what results I get at a couple of sites in Arizona.



*Parischnogaster mellyi* (Saussure) (Vespidae)



## Visiting Zimbabwe and Zambia

by

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As my NSF grant continues, so do my trips to Africa. In 1995, I visited Zimbabwe (17 January through 25 February) and Zambia (25 February through 10 April), trying to collect additional material for my revision of African *Tachysphex*. Zimbabwe is especially important for the project, because George Arnold lived there and it was there that he wrote his revision of African Sphecidae. Visiting the type localities and collecting material there was therefore of primary importance.

Zimbabwe is a still poor but well organized country, with good roads, functioning public transportation, an excellent airline (Air Zimbabwe), and telephones that work. It also has an important museum: Natural History Museum of Zimbabwe, Bulawayo, with its very interesting exhibits. George Arnold was the Museum's curator and director prior to World War II. Shortly after Zimbabwe's independence, his collection was sent to the South African Museum, Cape Town, in exchange for two stone eagles, symbols of the nation, that were originally found in the Great Zimbabwe ruins. This transaction is still resented in Bulawayo. The remaining entomological collections include various insect orders. Material is well preserved, and is often loaned abroad for research purposes. Only a small fraction of Arnold's Sphecidae remains there, and many common species are not represented at all. The current Head of the Entomology Department, Mrs. Rudo Sithole, is now Acting Director of the Museum. Her ambition is to rebuild the collection, and her research interest is in *Ammophila*. She helped me organize my trip in more than one way. Among others, she authorized use of the Museum's field vehicle, and provided technical help to guide me into the field. Incidentally, Rudo means love in the Shona language, and her name fits her nice personality well.

The main problem in Zimbabwe was the ongoing several year drought. Thunderstorms were mainly local and could not compensate for evaporation. Large parts of the country were just parched. Philip Mhlanga, the museum technician and a superb collector, took me to vari-

ous classic collecting places such as Khami ruins, Redbank and Sawmills, but we found few insects. The dry bed of the Khami River near Redbank, covered with flowering plants and teeming with insects, was an exception. We visited the place again a month later, only to find the river full of water and the insects all drowned. A supreme irony in a country suffering from the drought. Collecting was also very good 11 km east of Nyamandhlovu, on a sandy road going toward Sawmills. I then went to Victoria Falls on my own, and then to the Kariba area. Victoria Falls was more productive entomologically, and I could admire the majestic waterfall on the Zambezi. Niagara Falls is just a dwarf compared to the African giant that is 1700 m across and up to 100 m high. Walking in the bush on the city outskirts, I suddenly found myself facing an elephant. The animal looked surprised, raised his trunk, tusks and ears, and I felt very, very small and defenseless. I backed up and he walked into the bush. Subsequently, I felt rather insecure while following elephant tracks in various dry river beds near Kariba.

I then flew to Lusaka, Zambia, to meet Sandro Mochi, my traveling companion for several years, who was coming from Rome. We rented a car and went exploring the country. I felt immediately that Zambia was far behind Zimbabwe in its development. For example, making a phone call abroad was a major problem, and large sections of roads were just terrible, consisting mainly of potholes. There is a historical reason for that difference: during the colonial period, the British invested much more in Southern Rhodesia (now Zimbabwe) than in Northern Rhodesia (now Zambia). Our first target was Livingstone, the city on the Zambian side of Victoria Falls. It took us 3 days to get there, and while traveling and while en route we stayed in small but adequate hotels in Kalomo and Choma. In spite of the drought, we found several sites where wasps and other insects were abundant. Livingstone was a big entomological disappointment, but I could contemplate the falls again. We went back to Lusaka, collecting all the time (sometimes only trying to collect and finding nothing), and the next target was The Wildlife Camp on the outskirts of South Luangwa National Park. We first headed east, finally stopping at Chipata (near the Malawian border) and then

drove northeast on an unpaved road that would be practically impassable during the rainy season. We crossed the Luangwa River at a point from which we could see Mozambique, another exciting country. I knew the name of Luangwa before, as it is often cited in various papers by Rowland Turner, but I did not realize it was another big, spectacular river. The places where we spent nights were Kacholola (poor hotel, do not go there), Petauke, Sinda (hotel excellent), Katete, and Choma. The Wildlife Camp is efficiently run by a friendly couple (Ron is Australian, Anke is German), and I only wish I could have stayed there longer. You walk during the day from your cabin to the restaurant, and you see lion tracks. After sunset, you only drive these 500 meters to the restaurant, and you enjoy the view of hippopotamuses crossing the road. In the afternoon, you pin your insects on a veranda, and you see herds of antelopes, elephants and many birds just a few hundred meters away and down, on the Luangwa floodplain. The area must be what Roland Turner called Mid-Luangwa Valley in his papers, as it was a game reserve in the old days.

After having spent three days at the Camp, we went back to Lusaka. Then we decided to revisit Kafue National Park, west of Lusaka. We only made it as far as Mumbwa because Sandro became ill. His condition was such that we returned to Lusaka for medical help. Sandro's condition unexpectedly worsened in Lusaka where he passed away before he could be flown home (see obituary on page 5).

## Adventures in the Southwestern US - July/August and October 1995

by

A. S. Menke

Last summer Nancy and I had planned on backpacking into the high country of the Sierras in California, but the deep snowpack killed those plans. So instead we improvised a long itinerary that started and ended in Arizona. We picked up our hiking companion Bill Rowe in Phoenix and drove to the Spring Mountains northwest of Las Vegas, Nevada, a high, isolated and little collected range. Collecting was slow due to the late start of the season, but we managed to take series of *Ammophila azteca* and one *strenua*.



Bill had never been to Death Valley so we headed there next. Enroute we took in Ash Meadows, Nevada, an area of interesting hot springs, endemic fish and water bugs. Crystal Pool was as beautiful as ever. Mid July is extremely hot in Death Valley with temperatures commonly 110° F and above. In the old days, the park was essentially closed in summer because of the heat, but nowadays there are as many people in the valley in the summer as in winter, in fact probably more. The reason is the tremendous increase in foreign visitors to the US. Just about everyone we met was speaking German, French, Japanese or some other language. After taking in Bad Water, which is 280 feet below sea level, we headed west out of the valley and camped in the Panamint Mountains at Mahogany Flat, a favorite place of Nancy's and mine. The site is misnamed. It is not flat. You are on the ridge of the Panamints with tremendous views of Death Valley below to the east, and the Sierras to the west. The next day the three of us hiked to the top of Telescope Peak (11049'), a 14 mile roundtrip. It was a grueling day hike, but the views from the peak were terrific which made it all worthwhile. There were even small patches of snow near the summit.

Our next target was the lunar landscape of the White Mountains along the California-Nevada border. Here I hoped to collect *Ammophila* and other wasps at altitudes of 10-11,000'. We camped at Grandview as usual. Snow was much in evidence unlike previous visits, an indication of the heavy snowfall the previous winter. Best collecting proved to be at Crooked Creek at an elevation of 10,000'. With both Nancy and Bill using nets, we managed to capture nearly 100 *Ammophila*, as well as a lot of *Podalonia* and other wasps. The *Ammophila* were nearly all males, an indication that even in late July, the season was still early. The *Ammophila* were mostly the ubiquitous *azteca*, but a few specimens of what may prove to be *sylvestris* Kirkbride were taken, as well as *stangei* and *mediata*. We visited the high altitude field station that the Univ. of California operates at Crooked Creek. It is a brand new facility (by that I mean it's an old station with a new building) that offers accommodations to scientists with valid reasons to stay. They charge a nominal daily fee which includes room and board. It is a very nice set up. I can

provide particulars should anyone want to do some high altitude work in the White Mtns. White Mt. itself is only a few feet lower than Mt. Whitney in the nearby Sierra's (Whitney is nearly 14,500'). The Whites are in the rain shadow of the Sierra's and offer quite a different type of habitat, one that is home to the famous Bristle Cone pines, the oldest living things on earth.

Over the next few days we drove via a very circuitous route to Davis, California, to attend the 3rd Conference of the International Society of Hymenopterists. We visited Mono Lake, the ghost town of Bodie, traversed Yosemite Nat. Park, visited the town of Angels Camp, then drove back across the Sierra via Ebbitts Pass, ending up in Reno, Nevada. From there we headed north to Lassen National Park. Snow pack there was still 20 feet deep in places and lakes were still frozen! From there we headed west to the Pacific Coast where we drove south through the coastal redwoods. Just before we reached Davis, Bill flew to Atlanta because of an illness in his family.

The 5-day Hymenoptera bash at Davis was the best meeting I have ever attended, probably because everyone was a hymenopterist and there was much in common to talk about. There were some very fine presentations, and I met several young sphecoid workers for the first time. Some of the waspers I remember talking to during the conference were Eduardas Budrys, Gabe Melo, Marius Wasbauer, Denis Brothers, Mike Prentice, Terry Griswold, Al Hook, Alex Rasnitsyn, Woj Pulawski, Paul Hanson, Don Manley, Rogério Martins, Michael Ohl, Volker Mauss, Jim Carpenter, Justin Schmidt, and Byron Alexander.

After the conference was over, Nancy and I headed back to Arizona for several days of collecting along the Mexican border. In general collecting was very poor in southern Arizona because of draught. Rains had been few and far between – unusual for August. Collecting along the Ajo-Tucson road was frustratingly poor. We visited Kitt Peak Observatory at the north end of the Baboquivari Mts., a range that is little collected. This area is on Indian land and they have established a beautiful picnic ground at 7,000 feet with modern flush toilets, water, etc., but no overnight is camping allowed unfortunately. There was plenty of *Eriogonum* in bloom but no *Ammophila*.

Nancy and I drove from Tucson southwest to Arivaca, and then eastward over the dirt road leading to Sycamore Canyon and eventually Nogales. Here I must relate the most traumatic part of the entire trip. We reached Sycamore Canyon, parked, collected a while and then started walking down canyon, collecting along the way. This canyon is broad, has a stream, lots of flowers, and if you go 5 miles or so, you reach the Mexican border. We went about a mile before deciding to turn back. Collecting was disappointing. No *Ammophila* to be seen. On the way back we stopped at a narrow side canyon, the only one that had any water. While Nancy tried collecting on some flowers, I wandered up this little canyon a short distance and found no wasps. I turned around and went back to the main canyon, and continued on upstream toward the car. At this point I must tell you that Nancy is an intense, patient collector and consequently, she is slow moving. I usually end up ahead of her and wait for her to catch up. I got to the car about 2:15 PM, drank some water, ate some food and waited. No Nancy. So at about 2:40 I grabbed a liter of water and headed down stream again, expecting to run into her, no doubt dehydrated. Well, I ended up going all the way to where we had stopped and found no trace of Nancy! I returned to the car expecting to see her there, but no Nancy. I was worried. I made two more round trips down canyon, yelling out her name, looking in all the willow thickets, but still no Nancy. I searched the little side canyon where I had left her, but found a fence across it a short distance up and figured that she would not have climbed over it, especially since we had not had to climb any fences going down Sycamore Canyon. Back at the car at 4 o'clock I was frantic. I decided that I had to get help. So I left our remaining water, a sleeping bag, a tent, and a note telling her that I had gone to get help. It was about 10 miles over a winding dirt mountain road to the nearest settlement, Peña Blanca Lake. After going about a half mile I came to a side road to a ranch. I went down it thinking someone there might have a telephone. The rancher had no phone (too isolated) or radio. He suggested that I go on to Peña Blanca Lake while he took his dog and went to Sycamore to look for Nancy. I sped off for PB Lake, arriving about 5 PM. The manager of the resort called

the sheriff for me, I talked with him, and he told me to stay put until he got there. He arrived around 6. Sergeant Rodriguez followed me back to Sycamore Canyon over the 10 miles of winding road. We got there about 6:30, with not much daylight left. As I drove up, Rich, the rancher, yelled to me that he had found Nancy!! I rushed through the brush and saw her about 100 yards away, very tired, very dehydrated, and very glad to see me (and vice versa!). We managed to get a liter and a half of water down her and she soon revived. Nancy's ordeal was over and luckily she was OK. The sheriff was able to call off his search party before they arrived, but he did have an ambulance with medics come to check out Nancy's vital signs. She was OK, fortunately. The Santa Cruz Co. Sheriff's department and rescue squad are first rate, and we can't thank them enough for all their help. That night we stayed at the Peña Blanca Lake resort, and dinner was on the manager.

Whew! Nancy had spent about 5 hours wandering around, covering several miles of rugged, trailless terrain. When an event like this happens you really realize how much you love someone, and reflect upon how important they are in your life! In spite of her ordeal Nancy managed to collect one *Ammophila procera*, the only member of the genus taken that day!

What had happened, you may ask at this point. Let's let Nancy describe her adventure.

#### Nancy's MisAdventure

While collecting, I usually wear a large brimmed hat and since most wasps are on flowers and shrubs, I am usually looking down. Arn is often ahead of me since he's better at recognizing good collecting sites. As we followed the canyon down stream I failed to note the various side canyons that sharply angled off to our right. As luck would have it, just about where we turned around to return to the car there was a delightful grassy bank and I thought I spied an *Ammophila*. I told Arn I was going to stop for a few minutes to check it out. He investigated briefly before proceeding on up the main canyon. After I did indeed bag the *Ammophila*, I crossed the area, reentered (I thought) the original canyon and followed Arn upstream. After a few minutes I hadn't caught up

with him so I called out. No answer. I walked a bit faster to catch up. Called again. No answer. Damn him, he walks too fast! Up ahead I saw a fairly high barbed wire fence across the creek. Whoa, where did that come from? I knew we didn't cross one on the way down. But Arn always says I never look up while collecting so I just figured I'd gone under it without noticing. To gain a better height advantage and, I thought, easier walking, I climbed out of the canyon. Once on the side of the hill, I again called to Arn and still received no response. Things were not right! I managed to reach the ridge and thought I'd see the area where the car was parked, but to my dismay, found the slope went down to another creek. OK, so that's where the main canyon was. I climbed down and followed it upstream for several hundred yards. I called out to Arn. No answer. Only then did I realize it was not the canyon we'd descended. I crossed the creek, climbed out again and went up to that ridge and again descended into yet another creek. By then I was really tired and very thirsty. We hadn't intended a long hike so didn't carry water – a dumb mistake on my part, especially with the August temperature in the 90's. I knew it wasn't wise to drink the creek water so I just dunked my head under and then wet my shirt to keep cooler. I had a knife and could cut some of the cactus for moisture if things really got bad. So far, I was OK. I just had to keep going.

That day I realized it makes no difference if you know the compass directions, if you don't know where you started. I knew south of me was the Border and the car was not that way. Towards the setting sun I could see Baboquivari Peak, and farther away to the north, the sun reflecting off an observatories' disk antenna. Foolishly, I waved my arms. Hey, if they can see the stars and moon, they should have been able to see me!

I learned a lot about myself during those hours. Prayers helped, but knew I had to do something else to help myself. At that point I was more concerned about Arn. I knew he would be worried. All the books say to stay where you are and let help come to you, but that way I knew I'd be out there all night, waiting. Plus, Arn would be so worried. I also thought rescue searches wouldn't start that late in the day. It still seemed important to stay near a ridge during the

daylight so I could be spotted by air, should someone happen to fly by.

No panic yet, but when the shadows really began to lengthen, I resigned myself to the fact I'd be spending the night there and had to make some plans. I'd already seen two snakes in the rocks and knew I wanted to avoid that problem, if possible. In one of the streams I had seen a rather large, flat rock. That seemed my best bet for a haven for the night. I kept that place in mind and knew how to find it again. Pesky gnats were swarming around me by that time, but my net made a decent netting for my head. Up until now I'd kept up a steady pace, but realized I needed to rest. Things were getting pretty confused in my mind. I found a safe place to calm myself and thought about my predicament. At that time the seriousness of the situation hit me. I thought, "You know, sometimes people don't get found in time". I got scared to the point of almost getting sick. That's when I first noticed some movement up on the side of the hill. Three deer were walking as smoothly as you can imagine. I'd been up that way and knew the terrain was rugged. What did those deer know that I didn't? I set out again, with some dumb idea of following the deer. I climbed up the slope and saw they had been on a faint road. Obviously, it had not been traveled in a long time, but I knew it had to eventually connect to a main road. My problem was, which way to go. Right and left were equally unused. Arn and I had entered the area from the direction of the ghost town of Ruby, which was west of where I thought I was. I turned left, which was west, and set out at a near run on my "super highway". I decided to only call out to Arn every 15 minutes or so, because I was getting hoarse. Each time was met with silence. After several hundred yards the road turned south and dropped into yet another canyon. I followed, fording the stream, and proceeded up another slope. I stayed with the trail for about 20 minutes, but it didn't seem any more traveled than before. Something didn't feel right. I turned around and went back to where I first found the trail. It was very important to me NOT to stray from that faint double line. There I was no longer totally out of human touch. Those two ribbons meant another person had been there. I stopped for a minute, but was getting quite anxious as I saw the sun disappear behind the distant moun-

tains. This road HAD to go somewhere. If I could just find a paved road I would wait there until a car came along. As I rounded a turn, 100 yards ahead I saw an old water tank sitting in the middle of a fenced area – the first signs of civilization.

My trail had become a grassy road, but still no sign of inhabitants. Thinking of a helicopter rescue the next day, I wrote a large "HELP" on the tank and drew an arrow pointing the direction I was headed. The road started showing some use and dropped sharply in to a heavily wooded area. Suddenly, off in the distance I thought I heard a car door slam. I yelled out "Arnold!" and started running towards the sound. A car engine started and my heart stopped. I frantically cried, "Oh please, don't leave me! I'm lost!" To my relief, someone yelled, "I know you are!" It was a stranger's voice. How the heck did he know I was lost! At that moment I heard the sweetest sound you can imagine – Arn's voice. I fairly flew down the hill, yelling to him all the time. "Oh, Honey, I was so lost!" Finally, through the dusk, I saw him crossing a dry creek bed. We were both running to each other. As he grabbed me, I just collapsed. We were both crying. A few seconds later I saw some figures coming out of the bush. I asked Arn who they were. He said, "Honey, we've made a lot of new friends here today". It was Officer Rodriguez of the Santa Cruz County Sheriff's Department. Following him was a young in-training paramedic and his girlfriend. On his truck radio he'd heard the sheriff's report about my being lost. Thinking he might be needed, they too headed for Sycamore Canyon. Finally, there was Rich, the fellow and his dog, that Arn had met at the ranch. His was the voice I'd heard. Things moved quickly then. I was given a brief examination of vital signs and pronounced OK except for a rapid pulse and some dehydration. A bottle of cool Evian water was produced from the sheriff's cooler – best tasting water I've ever had!

It had been quite an ordeal for all of us. I can assure you, I will continue collecting, but from now on, will occasionally peek out from under my hat to pay closer attention to my surroundings. Now we return to Arn's trip report.

The next day, after we recovered from Nancy's adventure, we continued on to Nogales, visited the Sheriff to pay our

respects, and then took a dirt road eastward toward Bisbee. This road roughly parallels the border and traverses some great collecting areas. We stopped 6 miles east of Nogales and collected several species of *Ammophila* in a sandy area next to the Santa Cruz River, but all were common taxa. We tried various spots farther along the road but mostly they were disappointing in terms of *Ammophila*. One site, 11 miles east of Nogales, called, amazingly, Sycamore Canyon, looked especially great, but again was disappointing. This location is where *A. bella* Menke was collected some years ago by Robin Thorp, a Mexican species previously unrecorded in the U.S. I had hoped to take more specimens. Farther along we did collect *Ammophila placida* in the beautiful San Raphael Valley, but it is also a common species.

Operating out of Bisbee, we collected for several days at a number of areas that have been productive in past years. I was especially trying to collect the unknown female of *imitator* Menke, males of which have been collected at several places along the border. We tried collecting at the known *imitator* sites but found only *Ammophila pruinosus*, *cleopatra* and *breviceps*, all common species. We went as far as Guadalupe Canyon in the extreme southeastern corner of Arizona. In a wet year this should be a terrific collecting area. We took *Ammophila breviceps* and some crabronines. Collecting at Slaughter Ranch, east of Douglas on the Geronimo Trail, was equally disappointing. The most diversified collecting was at a sand pit about 2 and a half miles east of Douglas, where we captured a variety of Hymenoptera. We eventually tried our luck in Carr Canyon in the Huachuca Mts. The road in Carr Canyon takes you to the crest of the range at about 7,000', but collecting was poor at all elevations.

We returned to Washington, leaving our car at our Bisbee home. Then in early October we flew back to Arizona, picked up our car, and headed for Reno, Nevada to attend the annual meeting of the Southern Pacific Historical Society, a railroad group. Enroute, we collected at various places. Near Pahrump, Nevada we managed to take quite a few *Ammophila*, most specimens belonging to an as yet undescribed species in the *pruinosa* complex. We continued on, visiting Ash Meadows again. There we visited Point-of-Rocks Spring. Collect-

ing in Ash Meadows was poor. That evening we stayed at the Amaragosa Hotel in Death Valley Junction. What a wonderful experience that was. Death Valley Junction is nearly a ghost town now, although it flourished early in this century when it was a railroad town. Death Valley Junction consists of a restored opera house and hotel. Marta Becket is responsible for the restoration efforts, and she performs in the opera house during the winter. In the summer the hotel is the only thing going in town. Staying in it is a real treat. The only noise is an occasional car that passes by. Wild horses and asses are occasional visitors. Marta is quite a talented lady, and has decorated each room differently. We were in the "Jezebel" room, complete with red satin sheets and red light bulbs.

From DVJ we drove west into Death Valley and took the north road up the valley past Ubehebe Crater. At that point it becomes a dirt road. If you follow it, you eventually come out at the town of Big Pine in Owens Valley. The scenery along this isolated drive is at times outstanding. You pass Little and Big Sand Springs, cross the Last Chance Range, Eureka Valley, and Joshua Flats (a valley with thousands of Joshua trees), before dropping down out of the Inyo Mountains to Big Pine. We explored old mines and collected a few *Ammophila* here and there. Recently Death Valley National Monument became a National Park. The Park includes a lot more land than the old monument did.

We spent a night in the town of Lee Vining, our room overlooking Mono Lake – quite a vista. The next day we got into Nevada, and collected west of Fort Churchill along the Carson River. This was a wonderful collecting area and 5 or 6 species of *Ammophila* were taken, along with other wasps. That was essentially our last collecting of the trip. We visited the famous mining town of Virginia City and ended up in Reno for the railroad meeting. To begin our trip back to Maryland, we drove east on highway 50 (the "loneliest highway in North America"), across Nevada to Ely, where we were lucky to see Nevada Northern 40 (a steam locomotive) actually running. From there we zipped up to Logan, Utah and enjoyed a visit with Frank Parker. Then began the long drive back to Maryland. In Wyoming we chanced upon another steam engine in operation, the Union Pacific Challeng-

er, currently the largest locomotive in operation anywhere.

All in all, two great trips in the west. In retirement we look forward to spending a lot of time revisiting these old haunts and catching more *Ammophila*.

### Expedición a la Serranía del Chiribiquete, Colombia

by

**Fernando Fernández C.**

Programa Re-Creo

Universidad Nacional de Colombia  
Santafé de Bogotá D.C.

El Parque Chiribiquete es uno de los más recientemente creados en Colombia y uno de los más grandes. También, debido a su ubicación y características, es uno de los más desconocidos. La combinación de selva húmeda baja, mesetas o planicies con sabanas y bosques raquíticos naturales, y cañones estrechos hacen de Chiribiquete un lugar interesante por su paisaje y su flora y fauna. Esta es una breve crónica sobre la última expedición realizada al lugar, expedición que contó con biólogos de Colombia y España, apoyados por la Agencia de Cooperación Iberoamericana de España. La crónica se basa en un guión realizado para el Video de Exploración del Programa Re-Creo de la Universidad Nacional.

### Un poco de historia

A mediados del presente siglo un alemán inspirado por las repetidas búsquedas de un paraíso perdido, llegó a la Serranía del Chiribiquete, atraído por

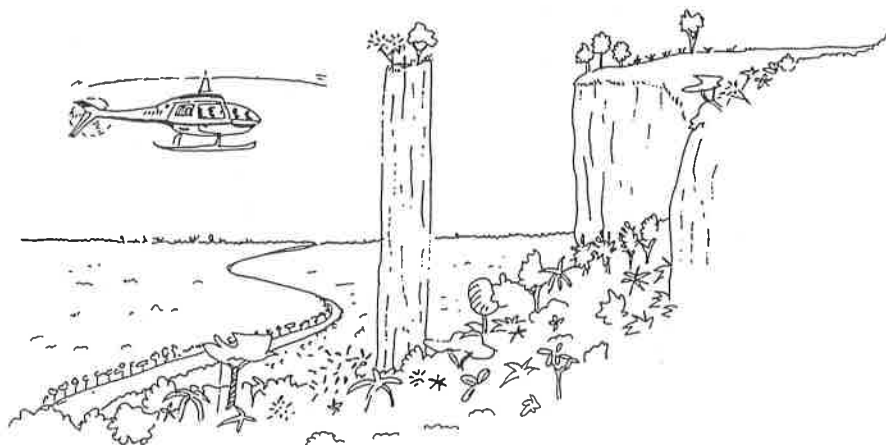


Fig. 2. Llegada a la primera meseta del Chiribiquete al fondo, el Rio Ajajú

el misterio que todavía hoy significa este Parque Nacional colombiano.

Sus hallazgos de vestigios arqueológicos, fogones y pinturas rupestres indecifrables ubicadas en una serranía fabulosa, alertaron la imaginación de científicos y especialistas colombianos y españoles que en los años 91 y 92, organizaron dos expediciones científicas importantes que recordaron las investigaciones realizadas por Mutis y el sabio Caldas en las décadas anteriores a la Independencia.

No estaba este alemán muy alejado de la realidad. La Serranía del Chiribiquete y el Parque del mismo nombre, encierran, en un área de 1.200.000 hectáreas, complejas relaciones biológicas, geológicas y posiblemente arqueológicas.

Las expediciones Colombo-Españolas han encontrado interesantes ejemplos de una frágil y diversa fauna y flora; el Chiribiquete es más o menos, una isla en la cuenca del Amazonas, desde cualquier ángulo en que se le mire.

En el corazón del país, al sur de la Serranía de la Macarena, perteneciente a los departamentos del Guaviare y el Caquetá, la Serranía del Chiribiquete ha podido esconder al hombre sus secretos desde tiempos inmemoriales; plantas primitivas al lado de otras que han sufrido una especial evolución para adaptarse a condiciones extremadamente hostiles; una variedad de insectos a veces inexplicable por las condiciones climáticas y los recursos que necesitan para su subsistencia. Pinturas que hablan de un mundo mágico pocas veces tan expresivo como en las paredes de esta serranía; pinturas que significaron el trabajo de varias generaciones de artistas halladas en lugares

tan inhóspitos que solo un tremendo poder religioso pudo haber movido a estas personas a buscar estos sitios de culto tan especiales donde la alimentación era escasa y las condiciones de vida difíciles aún para estos indígenas tan bien adaptados a la vida selvática.

### Viajando a Chiribiquete.

No es fácil llegar a Chiribiquete. Después de obtener los permisos necesarios (Oficina de Parques del Ministerio del Medio Ambiente) debe viajar (por avión o por tierra) desde Bogotá hasta Villavicencio. Por tierra son unas dos a tres horas en un cómodo bus, con unos US \$ 8 pasaje por persona. En avión son unos 25 minutos, pasaje unos US \$ 34. En Villavicencio (capital del Meta) debe contactarse con algunas de las líneas aéreas que prestan sus servicios en los llamados "territorios nacionales". Estos territorios, vastos y olvidados, cubren una amplia área de la Orinoquía y Amazonía colombianas. Estas flamantes aerolíneas se basan en viejos DC-3, DC-4 y equivalentes. La mayoría de pistas aéreas en la región son de tal naturaleza que solo aviones versátiles como estos bimotores pueden maniobrar sin mayores peligros. Para muchos de estos pueblos esparcidos, el jet o avión a reacción se conoce sólo de fotos. Con unos 45 a 60 minutos de vuelo (y unos \$ 40 por pasaje) se llega a Miraflores, un pueblo a mitad de camino entre San José del Guaviare (capital del departamento del Guaviare) y el límite norte de Chiribiquete.

Miraflores es un pueblo típico de la región, cuya economía se basa principalmente en la coca. La pista principal es la misma calle principal del pueblo, y cuando no hay aviones partiendo o



Fig. 1. Localización de Chiribiquete



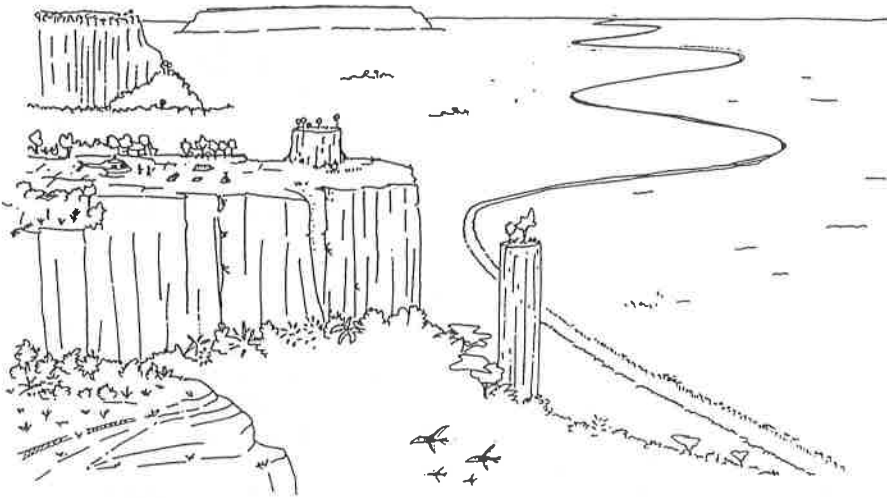


Fig. 3. Panorámica del campamento en la primera meseta. Al fondo otras mesetas y el Rio Ajajú en medio de la selva (Esquemático).

aterrizando, está llena de gente, vacas, perros, pájaros y cualquier cosa rara. Los aviones llegan y despegan casi continuamente, hasta 30 vuelos diarios. Esto es demasiado para un pueblo de estas regiones, pero es una prueba directa de la exitosa economía de la coca. Los precios en Miraflores son, obviamente, altísimos: un almuerzo puede valer unos 8 dólares. Se calcula que un 70% de las mujeres son prostitutas. Muchas de ellas provienen de diferentes lugares del país, atraídas por la posibilidad de hacer mucho dinero en poco tiempo. La zona, como tantas otras de la región, tiene problemas de orden público. Se encuentran allí militares, paramilitares, guerrilleros, colonos e indígenas en una mezcla explosiva que gira en torno a la explotación de la coca.

Recientemente (agosto de 1995) Miraflores fue arrasada por un ataque guerrillero que destruyó gran parte del pueblo, incluyendo el hospital y la iglesia. Ante las pocas garantías de vida, la mayoría de la gente está evacuando, desesperadamente, el lugar.

Desde Miraflores ha de tomarse un helicóptero para viajar a cualquiera de las mesetas del parque. El uso de helicópteros es costoso, y se supone que debe existir un previo contrato con cualquier compañía que preste servicios con estos aparatos. Sin helicóptero, podría viajar por tierra y por canoas, remontando ríos, trochas y caños. El viaje es muy largo (entre 20 y 50 días) aunque muy interesante, pues se puede conocer el bosque húmedo del Alto Apaporis, río que mucho más abajo viene a de-

sembocar en el Caquetá, cerca a la frontera con el Brasil.

Los claros naturales de las partes altas de las mesetas hacen fácil el aterrizaje del helicóptero, y facilitan el acampar. Hay abundancia de fuentes de agua gracias a una infinidad de caños y riachuelos con agua ferruginosa, rica en hierro y por supuesto sin contaminación.

#### Paisajes y micropaisajes

El entorno de la serranía del Chiribiquete y sus macizas rocas rompen la aparente monotonía de la selva lluviosa con paisajes muy diferentes y con sus propias condiciones climáticas y ecológicas. Las mismas planicies y rocas están rodeadas por selvas bajas húmedas, con condiciones de clima y comunidades bióticas similares a la de la selva de la cuenca. Estos son los bosques bajos que rodean la serranía. Muchas planicies tienen flancos que descienden suavemente hasta la selva baja, formando bosques de ladera que presentan una gradación altitudinal y posiblemente climática. Entre las planicies se forman valles de diferentes amplitudes y pendientes asociadas a ríos y caños que descienden de las cimas de las rocas. Las partes superiores de la serranía forman dos grandes paisajes, uno de bosques altos, asociados a bordes de rocas y formaciones acuosas, y otro de grandes extensiones de areniscas y roca expuesta con vegetación rala y esparcida. Igualmente, estas partes altas están ricamente regadas por caños, riachuelos y reservorios acuosos de aguas ácidas y oscuras, pobremente habitadas.

Las planicies también poseen "mini-mesetas" que pueden favorecer en sus cimas, laderas y grietas micropaisajes con condiciones particulares de clima ("microclimas") y probablemente con comunidades de flora y fauna muy propias. Estos micropaisajes pueden formar verdaderos oasis en estas planicies.

#### Las plantas y sus formas de vida

Aunque las expediciones arrojan resultados necesariamente preliminares en el estudio florístico de la región, existen ya unos resultados parciales que pueden dar una primera idea sobre como se las arreglan las plantas para vivir en estos medios severos.

Los botánicos han diferenciado unas 600 especies de vegetales, dato que habla de una relativa riqueza de la flora de la serranía, el doble de los afloramientos rocosos de Araracuara y el séxtuple del cerro de Aracá en el Brasil.

En general, los botánicos han distinguido varios paisajes de acuerdo a sus comunidades vegetales:

- Comunidades pioneras en suelo arenoso. Soportando fuertes cambios en la temperatura y gran pobreza de nutrientes, en un medio extremadamente hostil como la roca expuesta, crecen plantas verdaderamente pioneras y adaptadas, como la *Vellozia*.
- Bosque de porte bajo, con predominancia de *Bonnetia*, *Tepuianthus* y *Licania*. Este bosque es dominante en las planicies.
- Matorral (pastizal) de *Bonettia* y *Digitaria* formando parches definidos.
- Bosque maduro de *Tachigalia*, *Gauteria* y *Micrandria*. Este es un bosque de gran porte en las laderas.
- Bosque de orilla de río, con algunas combretáceas, briófitos y *Ficus*. Este bosque tiene apariencia de el altoandino.
- Bosque de leguminosas y *Micrandria*, en apariencia a los de las terrazas altas no inundables del Amazonas.
- Bosque de pantano con *Euterpe* y *Rapatea*.
- Bosque bajo de *Calophyllum* y *Protium*, en zonas planas y suelos profundos.

#### Los animales y sus planteamientos

La impresión general de los zoólogos sobre las colecciones y observaciones hechas en las dos excursiones es de una fauna más bien pobre y poco visible. Aunque ciertamente que



Fig. 4. En el calcinante calor del mediodía, un diplópodo se aventura por las rocas expuestas. En primer plano, una hormiga del fuego se apresura a coleccionar una semilla.

el tiempo de trabajo fue muy poco, la fauna de vertebrados es escasa, en contraste con la que debe prosperar en las selvas bajas que rodean la serranía. No se sabe si existe un carácter estacional en algunas especies (especialmente de aves) que pueda mostrar un aspecto diferente en otra época.

Al parecer, la distribución de insectos parece ser muy local para muchas especies en las selvas tropicales. Por ejemplo, muchos coleópteros están confinados a árboles específicos en la selva, así como a áreas definidas. Si esto se cumple para muchos insectos, entonces la entomofauna de las selvas es rica y heterogénea, pero muy localizada.

Aunque en apariencia la entomofauna de las planicies parece pobre, métodos de trapeo especializados demostraron que la diversidad puede ser apreciable. La existencia de microambientes puede favorecer la permanencia de muchas especies de insectos, que normalmente no prosperarían en los paisajes abiertos y secos de las planicies.

Las partes altas de la Serranía del Chiribiquete no son precisamente ricas en densidad para los insectos, pero parece que éstos se las arreglan bien para sobrevivir.

Hay formas indirectas de indagar sobre las formas de vida de algunos grupos de insectos.

Uno de los grupos más fascinantes de predadores de los trópicos es el de las rezanderas o mantis religiosas. Las mantis son insectos tan agresivos que las hembras devoran a sus consortes durante el apareamiento. En las calurosas planicies de una de las mesetas descubrimos a una hermosa y grande hembra acicalándose antes de la caza. A juzgar por su tamaño e intensa actividad, no podemos menos que suponer que este insecto encuentre regularmente sus presas. En otras vecindades también se observaron otros mántidos; si las presas son escasas entonces a estos animales les debe costar mucho apaciguar el hambre.

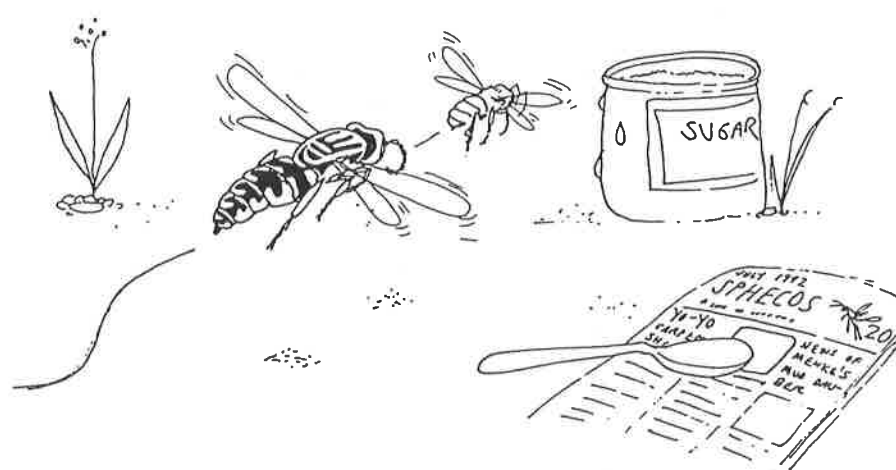


Fig. 5. En la improvisada cocina del campamento, un bembecino persigue a una abeja de la miel.

Se vieron y coleccionaron pocas especies de esfécidos. Uno de ellos, un bembecino probablemente del género *Rubrica*, solía visitar todos los días la improvisada cocina del campamento a la caza de abejas melíferas. Las *Apis* llegaban constantemente a buscar azúcares y líquidos, y regularmente hacia el mediodía aparecía el esfécido persiguiendo abejas. Según la cocinera la avispa algunas veces había capturado abejas, lo cual no pudimos observar directamente. No sabemos si existen registros sobre ataque de algún Bembecini a abejas.

Las abejas más abundantes en Chiribiquete son las meliponinas. En las laderas de las mesetas y valles, especialmente cerca a ríos y quebradas, las *Trigona* acuden atraídas por el sudor de los cuerpos fatigados de los naturalistas. En cosa de minutos, una verdadera nube de abejas rodean a cada persona hasta tal punto que se hacen insoportables. Estas abejas no desperdician cualquier oportunidad de hacerse a sales para llevar a sus nidos.

Las avispas cazadoras de arañas son muy escasas; apenas se capturó un *Notocyphus* en una trampa Malaise. Las avispas sociales son algo más comunes, y algunas construyen sus nidos entre los árboles raquíticos de los bosques ralos de las mesetas.

Aunque una bendición de la reserva es la escasez de dípteros hematófagos como los zancudos (Culicidae) son muy molestos los jejenes (Simuliidae) y a veces los tábanos (Tabanidae).

Los insectos más abundantes de los trópicos son las termitas y las hormigas; alguien calculó que en un bosque húmedo pueden constituir hasta la tercera parte de la biomasa de invertebrada.

dos. Las hormigas, además de ser tan numerosas, están metidas en todas partes, en continuo movimiento, en permanente agitación. Hay casi 10000 especies de hormigas conocidas en el mundo, comprendiendo multitud de formas, desde voraces carnívoras hasta pacíficas agricultoras. Las extensas selvas que rodean las serranías del Chiribiquete seguramente albergan ricas poblaciones de hormigas, pero ... ¿Que pasa en el Chiribiquete? Las observaciones parciales parecen indicar que solo ciertos grupos han podido conquistar estas catedrales rocosas.

Las planicies abiertas y secas sostienen hormigas capaces de soportar ambientes calientes y con pobres recursos. Bajo ardientes días bajo el sol algunas se atreven a recorrer las ardientes rocas en busca de semillas o

cualquier otro fragmento de vegetal o animal que pueda servirles de alimento. No es tarea fácil, pues además de la energía gastada en buscar alimento, deben competir con otras hormigas y aves, y escabullirse de algunos enemigos. Aunque estos insectos no la pasan bien, saben como defenderse.

Como es tan difícil conseguir una miga de alimento en pleno día, otras hormigas han optado por la oscuridad. En la fresca noche ciertos grupos de hormigas explotan eficazmente las ricas gotas de néctar que exudan algunas plantas; al llegar el nuevo día con su aplastante calor, aguardan escondidas y en quietud la llegada de la fría noche.

Los bosques ralos de bonetias que alternan como parches los calurosos claros son otro ambiente que han con-

quistado otras hormigas, como las agresivas Azteca, famosas por sus asociaciones benéficas con plantas como los yarumos. Las hormigas de estos bosques son un poco diferentes, más ajustadas a hábitats arbóreos que a calcinados suelos.

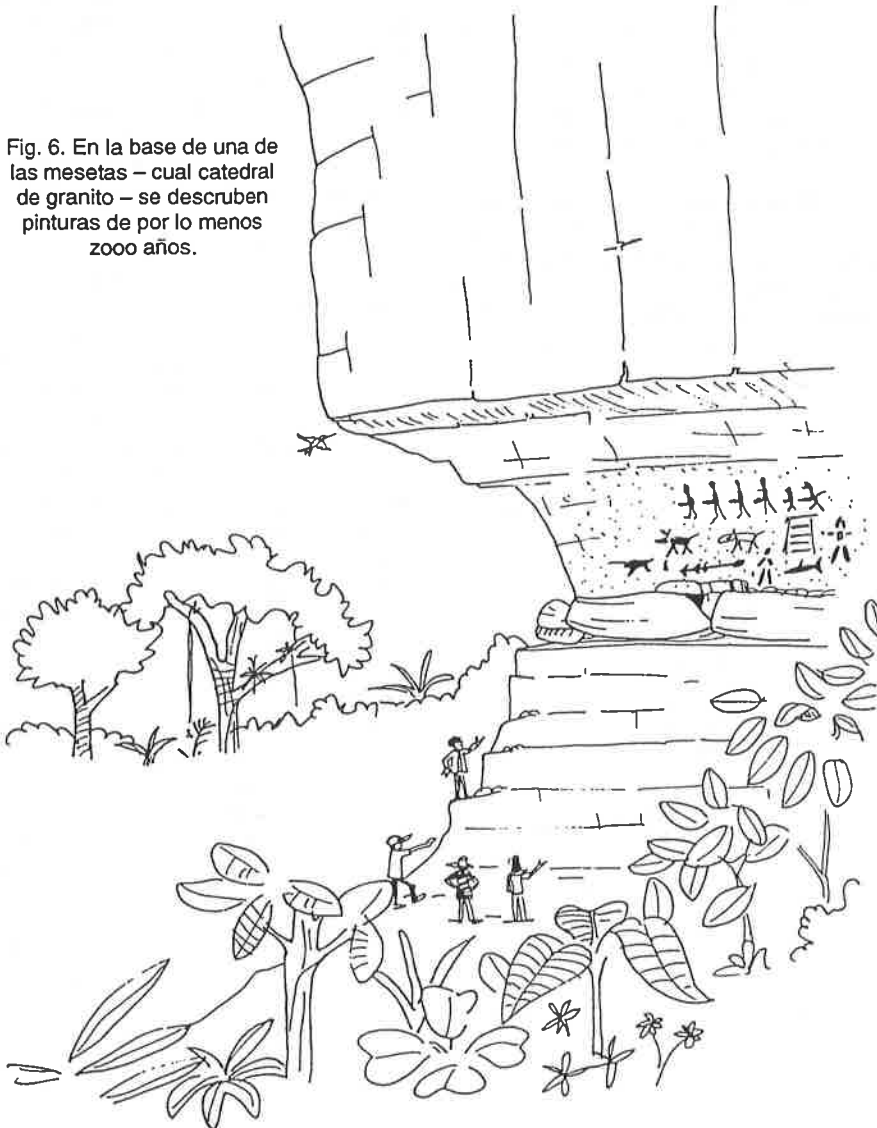
Los bosques de gran porte que se encuentran en las laderas y valles interplanicies ofrecen condiciones húmedas y más benignas. Aquí nos encontramos con hormigas más espectaculares, como las hormigas congas (*Paraponera clavata*), gigantes carnívoras que prosperan en nuestras selvas desde tiempos arcaicos, grandes y oportunistas congona (*Camponotus sericeiventris*) y también las impresionantes legiones de impetuosas nómadas (*Eciton* spp.).

Estas hormigas, llamadas una vez como los "hunos y tártaros" del reino animal, forman fabulosos ejércitos de beligerantes obreras y soldados bien armados de falanges y dardos. Gracias a un sofisticado sistema químico de comunicación, exploran afanosamente cada palmo de suelo y de vegetación baja, despedazando insectos, arañas, escorpiones, y atacando lagartijas, serpientes y cualquier otro pequeño vertebrado que no escape a estas hordas.

Probablemente muchos ambientes de las islas rocosas de la Serranía del Chiribiquete no sean los más propicios para muchas especies de hormigas, pero algunas de éstas se las han arreglado bien para colonizar "islotos" benignos y aprovechar eficazmente los escasos recursos de las planicies.

Las mariposas son relativamente escasas (en comparación con las selvas húmedas bajas) pero presentan aspectos interesantes, según el profesor Gonzalo Andrade. Por ejemplo, esta fauna posee componentes de otras regiones (amazónica, orinocense, andina) mostrando una heterogeneidad geográfica como la de otros grupos (aves). A pesar de su poca diversidad, estos insectos deben enfrentar importantes problemas para su subsistencia; fuertes vientos, agudos cambios de temperatura, escasez de sales y otros nutrientes, etc. Al parecer la fauna de una planicie particular puede tener una composición diferente a otra vecina. Aunque la lepidopterofauna sea escasa lo interesante es como se las arreglan sus representantes para sobrevivir; cierta hermosa mariposa azul, por ejemplo, posee ciertos ganchos o anclas que le permiten

Fig. 6. En la base de una de las mesetas - cual catedral de granito - se describen pinturas de por lo menos 2000 años.



aferrarse tenazmente a las rocas u otras superficies para soportar los fuertes embates del viento que de cuando en cuando azotan la serranía.

Las aves son un grupo también pobremente representado en las cimas de la serranía, por similares razones a otros grupos, principalmente pocas ofertas de alimentación. Según Gary Stiles, la ornitofauna parece tener también elementos de las otras regiones (amazónica, andina y orinocense), y presenta tendencia hacia formas insectívoras.

Existen ciertos grupos de mamíferos que han conquistado las hostiles mesetas del Chiribiquete. Los probablemente más comunes son los roedores, muchos de los cuales prosperan en cavidades en rocas y otras hoquedades de raíces y troncos, consumiendo semillas y restos orgánicos. Existen ciertos grupos de ratas espinosas y borugos, a juzgar por sus huellas, así como pequeños felinos y carnívoros como el ocelote y la taira. También se observaron huellas de dantas y dantas en las cercanías del campamento. Muchos otros grupos de mamíferos (primates, osos hormigueros, venados, cerdos de monte, liebres, zarigüeyas, perezosos, etc) no están presentes (o son muy escasos), ratificando la poca oferta de alimento para animales de sangre caliente. Es interesante como esta fauna va cambiando y ajustándose a medida que vamos subiendo desde las ricas selvas bajas hasta las áridas y rocosas cimas.

### Arqueología

Nadie sabe aún con certeza, de donde vinieron los Carijona, antiguos habitantes o visitantes de esta serranía a quienes hoy los arqueólogos atribuyen estas impresionantes pinturas. Quizá sean inmigrantes caribes provenientes del Bajo Orinoco Venezolano, o tal vez hayan venido del Brasil; lo cierto es que las pocas descripciones que hay sobre esta comunidad no permiten dar explicaciones certeras sobre su origen.

Las comunidades adyacentes a la serranía actualmente y las investigaciones de algunos antropólogos hablan de la gente Jaguar, los Carijona, como una tribu belicosa y fuerte que tuvo pocas relaciones con sus vecinos excepto por los contactos motivados por el intercambio de armas, de las que parecían ser hábiles fabricantes y la captura y trata de esclavos.

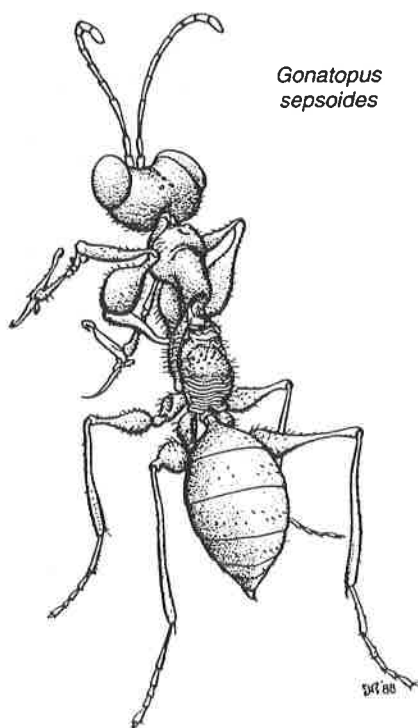
Las leyendas y mitos actuales de estas comunidades, cuentan historias de

gente descomunal y poderosa que incursionaba en sus territorios ocasionalmente para esclavizar gente que luego intercambiaba con los brasileños por bienes necesarios para su subsistencia; los Carijona, según ellos, se transformaban en animales cuando lo deseaban, eran tigres o águilas o boas, espíritus de animales que generalmente dominaban a sus enemigos, capaces de generar poderosos fenómenos naturales con los que arrasaban a sus oponentes.

Los Carijona representaron en las laderas de estos Tepuyes una compleja cosmogonía, indescifrable para nosotros, donde las figuras de animales y hombres se mezclan con flores y trazos gráficos, en obras de grandes proporciones. Con razón las pinturas rupestres encontradas en la Serranía han dado lugar a que se le califique como la Capilla Sixtina de la Amazonía.

Según los especialistas, estas obras, su dimensión y profusión no tienen parangón en la pintura rupestre hasta ahora encontrada en la cuenca del amazonas y en una gran parte del mundo.

**Agradecimientos.** Al profesor Julián Betancourt, director del programa Re-Creo, por propiciar esta publicación y a los camarógrafos y hombres del video Juan Fernando Gutierrez y Pierre Heron por la complicidad en el film y el guión original.



*Gonatopus sepsoides*

## MUSEUM/COLLECTION NEWS

### A Collection in the Oman Natural History Museum

by

**Michael Gallagher**

Oman Natural History Museum

PO Box 668, Muscat 113

Sultanate of Oman

Well-curated and identified collections of insects are scarce in Arabia since Kuwait's was stolen during the Iraqi occupation. Although Dr. Wasmia Al-Houty tells me that she is rebuilding the Kuwait collection from scratch, it may be of interest to report that in the Oman Natural History Museum (ONHM, opened December 1985 near Muscat) there is already small but growing Insect Collection of identified material.

It is now housed in 12 steel cabinets, each containing 12 Cornell-type glass-topped drawers. There was, ten years ago, no intention on my part (as Adviser and Curator) to start an insect collection. The reasons: no interested Omani was available to continue the curation into the future, and I am not an entomologist by training.

However, several very kind donations of identified specimens began to change the situation. First, in May 1983 K. M. Guichard, and Dr. N. Jago and Dr. G. B. Popov, of what then was the Centre of Overseas Pest Research, UK, donated a large representative collection of Orthoptera, all collected in Oman. Then, in 1985, came more Orthoptera from George Popov, and mounted and identified beetles and some other insects from Dr. M. Brancucci, Natural History Museum, Basel, Switzerland. Both the latter were of great help in the preparation of the public exhibition of insects in the new Oman Natural History Museum.

When the exhibits were complete many specimens remained from these donations which clearly deserved proper curation and secure housing, and the Minister for National Heritage & Culture agreed to purchase twelve cabinets from U.S.A. Soon, as the result of collecting in Oman since 1976, we had a good, growing Collection. Biting flies (Diptera: Ceratopogonidae) came from Dr. R. P. Lane in 1986; beeflies (Diptera: Bombyliidae) came from K.M. Guichard in 1987; Neuroptera from H. Hölzel, Austria, in 1988; mantids from



Dr. A. Kaltenbach, Vienna, in 1989; and then in 1989, 1992 and 1993 identified collections of micro-hymenoptera from Dr. J. T. Huber, Canadian National Collection of Insects (CNC), Ottawa, Canada, who visited Oman in February 1986 and has given me much encouragement. A representative collection of mosquitos (Diptera: Culicidae) came from R. Irving-Bell in 1991. Other visitors included J.C. Deeming, National Museum of Wales, Cardiff, UK, who set out the reference collection of Diptera and Hemiptera in 1990 and 1992. In this period we also set up reference collections of Lepidoptera, Thysanura, ants and some other groups.

More recently, many sphecids specimens were identified and others donated by K. M. Guichard in 1994; he had visited the Sultanate in 1976 and 1977 (see Profile in *Sphecos* 4: 7). Dr. W. Schneider visited in 1994 to set out the collection of Odonata, and Dr. M. W. Balkenohl revised our large collection of Coleoptera in October 1995. A recent acquisition is a collection of insects (including 30 Aculeate Hymenoptera) by Dr. Michael Gillett, United Arab Emirates University, Al Ain, Abu Dhabi, from nearby Oman since 1993.

Many smaller collections of Hymenoptera have been made over the years – and continue to be made – by residents and visitors. Some specimens are mounted and retained unidentified, but most of the small specimens are sent to J. T. Huber at CNC, where they are currently being examined by him, and by several other specialists such as J. LaSalle (Eulophidae), L. Masner (Platygastroidea), J. Sharkey (braconids), and D. Wahl (Ichneumonidae); material is also in the care of Dr. D. J. Brothers (South Africa) and Dr. L. Kimsey (California). Other names on det labels on Museum specimens include C. van Achterberg, Z. Boucek, J. C. Deeming, A. T. Finnamore, G. Gibson, J. S. Noyes, A. Polaszek, W. J. Pulawski, and H. Townes. With their excellent support and that of the collectors the collection of parasitic and Aculeate Hymenoptera now occupies eight drawers, two of which are for Sphecidae.

A list of species of the parasitic and Aculeate Hymenoptera of Oman has been prepared by me; based on the Collection and on published accounts it was edited by John Huber, Woj Pulawski and Arnold Menke. This is **Oman Natural History Museum Check-list**

**No. 5** (8 pp. including a brief bibliography). Nearly 600 species are listed, of which sphecids number 185 species of 58 genera. However, actual specimens of sphecids held total only 100 examples of 51 species.

Although the ONHM Collection is small, it is a start! Our aim is to develop it into a national reference collection, as for other groups. It is clear that there is great scope for further collecting in the Sultanate. The fauna is surprisingly rich, with many species which are rare in collections. For instance, males of the rare genus of sphecids, *Heterogyna*, are often collected at light, but no females have been found. Like others, this small Museum is constrained by lack of time, expertise and funds, and of specialists with time to help determine the collections. Our work is publicised in a free leaflet, which has led to further interest among the public, and to help by Omanis and volunteer Friends of the Museum in processing collections for study. Any reader who wishes to consult the Collection, or who would be interested in accepting groups for determination and return – or who wishes to visit Oman to collect more, is invited to write to: The Director, Natural History Museum, at the above address or fax 968.602735.

### The Collection of Arnaldo de Winkelried Bertoni

by

**Bolívar R. Garcete Barrett**

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Arnaldo de Winkelried Bertoni, born in Switzerland, belonged to a great family dedicated to science. His father, the naturalist Moises Santiago Bertoni, founded Colonia Guillermo Tell, afterwards called Puerto Bertoni, on the Paraguayan side of the River Parana, in the middle of the jungle. This site is now called the Monumento Científico Moises S. Bertoni. Here Winkelried, under the influence of his father, took great interest in zoology, resulting in a museum of zoology with an important collection. In Puerto Bertoni he published a number of works on birds, reptiles, mammals, and insects of Paraguay. Among the insects he had a special love for aculeate Hymenoptera, and this is reflect-

ed in his collections and papers, dating from 1910 to 1934. These concern faunistic studies and biology of various groups and the description of a number of species, mainly Eumeninae (Vespididae), but also Polistinae, Masarinae, Sphecinae and Trigonalidae.

Around the 30's he moved to Asuncion to work with the Ministry of Agriculture, bringing a part of his collection and eventually depositing it in the basement of the Banco Agrícola (now Banco de Fomento) where Winkelried had his last office. That collection was said to be there after his death and had been considered lost by most foreign entomologists.

The story is not clear, but recently Blanca Barrios of the Museo Nacional de Historia Natural del Paraguay (MNHNP) discovered that the Instituto Agronómico Nacional (IAN) in Caacupe had a collection of A. W. Bertoni's. He asked for and obtained this collection for the MNHNP. Early this year I asked Siemens Bertoni, Winkelried's nephew and Director of the MNHNP at that time, to investigate what happened to the collection in the Banco de Fomento. He found that the collection was no longer there and nobody knew where it was. Suspicions then fell on the Ministry of Agriculture. Was it possible that the IAN collection was the one from Banco de Fomento that was missing? That suspicion has in part been confirmed by me because the MNHNP collection now contains types of most, and possibly and hopefully all, of the species of Vespidae described by Winkelried. However, it may be that Winkelried Bertoni himself gave this collection to people in the IAN.

On the other hand, Puerto Bertoni still has its museum and there are still wasps there, as well as other insects, deteriorating because of the poor condition of the building and the climate of the place itself.

It is very fortunate that in the MNHNP the vespid collection is in good shape, but I hope to unify the whole collection, deposit it here and begin to study it with the help of anyone else who is interested. But there are some difficulties: people in the Ministry of Agriculture show no real understanding of the importance of museum work and have little interest in moving the Bertoni collection to a national museum where it would be available to the scientific community. Because of this we have a

limited supply of material and cabinets for the collection; this is the one thing limiting my work with the Bertoni collection at the moment. I need to expand it into secure boxes because the original ones are very small, without chemical protection, and the specimens are crowded together.

In August I submitted a proposal for a project to save the insect collection of the museum of Puerto Bertoni and to deposit it in the MNHNP, but I faced great difficulties because of the problems mentioned above. If it is not possible to deposit the whole collection in the MNHNP, I hope to save at least the type material and other important specimens. It is clear, nevertheless, that the collection we now have in the MNHNP will stay here, and that is very fortunate because it is the most important part of the collection of A. W. Bertoni. At the moment people helping with this project, apart from me and John Kochalka in the MNHNP, are Jim Carpenter, Arnold Menke and Abraham Willink. I hope people abroad will take interest in this project and will be able to help us at least with information about points of which we are not aware, and if someone is interested in helping with materials or funding please write to me.

**Correct Type Depositories for Eumenine Wasps Described by A. Giordani Soika 1993 (1991):**  
**Contributo alla conoscenza degli Eumenidi dell'Australia e della Nuova Guinea (Hym. Vespoidea)**  
 Boll. Mus. civ. St. nat. Venezia  
 42:125-149

by  
**Roy R. Snelling**  
 Natural History Museum of L. A. Co.,  
 900 Exposition Blvd.,  
 Los Angeles, California 90007

The following species were described from material that I collected in Australia in 1988. Although I had indicated in my cover letter to Soika that the types were to be deposited in the Australian National Insect Collection (ANIC), he cited all as deposited in the LACM. The following primary types were returned to Australia immediately upon receiving them from Soika.

*Ischnocoelia chlorotica* (p. 125-126); ♂ holotype in ANIC; paratypes (1 ♀, 1 ♂) in LACM and MCSN (1 ♂).

*Subancistrocerus albocinctus* (p. 127-128); ♂ holotype in ANIC; paratypes (1 ♀, 1 ♂) in LACM and MCSN (1 ♂). Collector is R. R. Snelling, not R. A. Snelling as cited.

*Syneuodynerus aurantiacus* (p. 134-135); ♀ holotype in ANIC; ♀ paratype in MCSN.

*Australodynerus unipunctatus* (p. 139-140); ♀ holotype in ANIC; ♀ paratype in MCSN.

*Anterhynchium (Epiodynerus) tamaninum* (sic!) ssp. *septentrionalis* (p. 145); ♀ holotype in ANIC; paratypes (2 ♀, 1 ♂) in LACM and MCSN (1 ♀). Type locality is Headquarters, Kakadu National Park, NT.



## ALTERNATIVES TO CRITICAL POINT DRYING OF SPECIMENS

[Reprinted from  
*Chalcid Forum* 18, 1995]

### A Simple yet Effective Method for Drying Alcohol Preserved Specimens

by  
**Simon van Noort**  
 South African Museum  
 Cape Town

Following on Terri Taylor's (1993) report on drying methods, a further method, utilizing acetone as the effective agent, needs to be publicized. The acetone drying procedure is a simple and cost-effective method for drying weakly sclerotised or small insects preserved in alcohol in preparation for dry mounting or scanning electron microscopy. The principle of the technique relies on the replacement of the alcohol contained in the specimen with highly volatile acetone, which is then speed evaporated under heat, leaving the specimen in a perfectly preserved state.

The technique was first described by Truman (1968) who used the method to preserve larval and adult mosquitoes. Walpole *et al.* (1988) applied the

technique to representatives of Diptera, Hemiptera and Anoplura for SEM preparation. Tony Ware of the now disbanded Rhodes University fig team, headed by Steve Compton, was the first to apply this technique to Hymenoptera, specifically fig wasps, as an alternative to critical point drying for SEM preparation. Together with Rob Cross of the Electron Microscopy Unit at Rhodes University, they reported on the success of this treatment for the preparation of Agaonidae (Ware & Cross, 1989).

I have been using the technique for the mounting of fig wasps, and chalcids in general, for several years now. This includes both specimens preserved in alcohol (under sub-optimal conditions) for twenty plus years and freshly collected material from Malaise traps, yellow pan traps etc. The method works equally well for old and freshly collected material and is particularly useful for families with weakly sclerotised or small representatives. More recently I have subjected proctos (*s.l.*), cynipoids, ichneumonoids and smaller sized aculeates, such as dryinids to this treatment, with equal success. A colleague, Hamish Robertson, applies the technique successfully to ants. Many chalcids and proctos, being strongly sclerotised, do not really require this special treatment. I apply it as a matter of course, in an attempt to preclude any possibility of antennal or compound eye collapse. In some taxa, particularly ichneumonids, the gaster (metasoma) often distends when stored in alcohol. Acetone drying preserves the distention, creating an artificial appearance to the gaster, but this does allow for clear all round observation of the tergal and sternal plates. It is, nevertheless, possible to control the final extent of distention by allowing the specimen to dry out until the gaster returns to normal, before placement in the acetone environment.

The acetone environment can be created by saturating a layer of cotton wool in the bottom of an airtight glass (or acetone-proof plastic) container with acetone and placing or pinning the specimens on some sort of platform (I use a piece of SPX foam) above the cotton wool. Specimens may either be placed directly into the acetone environment from alcohol or first mounted. For direct placement it is best to float the specimens out of the alcohol onto thin card, as it is essential to achieve

the desired position for later mounting at this stage. A certain amount of manipulation can be carried out after acetone saturation and before drying, but the final position has more or less been determined at this point. Alternatively the specimen can be micro-pinned and double mounted (the synthetic "poly-porous" silicon strip is not affected by acetone) or card mounted prior to placement in acetone vapour. I have used both water soluble glue and shellac gel (with little success) for card mounting. The adhesive must be allowed to dry sufficiently before placement in the acetone environment, so that the properties of the glue are not affected. Water soluble glue turns opaque and shellac gel loses its adherence properties. The latter is presumably as a result of the alcohol in the gel being replaced by the acetone and affecting the resultant bond. It is absolutely critical to achieve a balance between the glue drying sufficiently and the specimen remaining sufficiently wet to prevent any collapsing prior to acetone treatment. This sounds as if it involves much fussing, but with a bit of experimentation it is not difficult to get the timing right. I find that the ease of handling mounted specimens outweighs the disadvantages involved with gluing the specimen first.

The specimens are left for a minimum of three hours in the acetone jar, although no ill effects arise if they are left overnight, before removal and placement under a desk lamp (close to the bulb) for at least half an hour. A 60-watt bulb provides sufficient heat to speed dry the volatile acetone, leaving the specimens in a well preserved and uncollapsed state. With this method, good results can be achieved quickly and at low cost without requiring access to freeze drying or critical point drying equipment.

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#### Another Method of Drying Chalcidoids

by

David P. Cowan

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 Kalamazoo Michigan

I am afraid that I am not well plugged into the network of chalcid workers and the methods I write about here may be old hat to most. The distortion of dried chalcid specimens is of course a well known problem, especially for specimens collected into alcohol. From what I have learned in the literature, the solution to this is critical point drying, which requires fairly expensive equipment and, I am informed by some, can be dangerous. For years, our electron microscope technician has been preparing small arthropods by aldehyde fixation, dehydration to 100% alcohol, and then through hexamethyldisilazane (HMDS). The HMDS is allowed to evaporate leaving specimens that show no collapse.

I have adapted this method to specimens that I collected into 95% ethyl alcohol with a Malaise trap. The results, I think, have been good and work well not only for chalcids but any soft bodied insects including braconids, Diptera, aphids etc. I remove the desired specimens from the trap jar, rinse in clean 95% alcohol, transfer them to 100% alcohol, change this once, and then transfer them through two baths of HMDS. I then allow the HMDS to evaporate and this leaves the specimens ready for mounting on cards or points. The specimens are of course brittle and must be handled with care.

HMDS is nasty stuff and must be handled with great caution: no contact with the skin, and no breathing fumes. Always work under a hood. This chemical is not exorbitantly priced and only small amounts are needed for a sample of several dozen insects. HMDS is available from Polysciences, Inc. Warrington, PA 18976 (1-800-523-2575), Catalog # 00692.

[Some additional information and literature concerning this subject was given by Bryan V. Brown in *Fly Times* No. 11, Oct. 1993 and we reprint this here as a supplement to David's note above.]



#### A Further Chemical Alternative to Critical-point-drying for Preparing Small (Or Large) Flies

by

Bryan V. Brown

Previously, I wrote about the use of Peldri II as a chemical alternative to critical-point-drying (CPD) (Brown, 1990). Using Peldri II for specimen preparation has the advantage of not requiring expensive equipment and huge canisters of CO<sub>2</sub>, but the chemical is somewhat expensive and requires some equipment, i.e. a hot plate.

Recently I came across a material that seems to overcome all the drawbacks of Peldri II. This chemical, called hexamethyldisilazane (HMDS) is readily available and cheap, costing \$18.00/250g, versus \$58.00/250g for Peldri II. No heating or cooling is needed for using HMDS: one merely dehydrates specimens to 100% alcohol, then do two soaks of 1/2 hour in pure HMDS (i.e. change the HMDS once). I use small vials for the soaks. After the second soaking, I pour the HMDS and flies into shallow depressions or small dishes, and allow the liquid to evaporate under a fume hood. Specimens come out exactly like CPD prepared specimens, ready for SEM or for general mounting for the collection. Other users agree, finding that HMDS is just as or more effective than CPD for producing perfect specimens of various tissues (Adams et al., 1987; Nation, 1983). Note for larger samples (for instance, 50 small flies at once), I recommend an extra change of HMDS.

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 Nation, J.L. 1983. A new method using hexamethyldisilazane for preparation of soft insect tissues for scanning electron microscopy. *Stain Technology*. 58: 347-351.

[The HMDS method described in the last to articles has been experimented

with by Mike Schauff and Eric Grissell using chalcidoids. Preliminary results suggest that the method produces the same results obtained from a critical point dryer.]



## ICZN News - the new Code

A draft of a new Code of Zoological Nomenclature (the 4th edition) was printed in 1995 and since then has been circulating in the scientific community for comments, criticisms, etc. Copies of the draft are obtainable from the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, England, and The American Association for Zoological Nomenclature, c/o Smithsonian Institution, Washington D.C. 20560. It can also be accessed via e-mail at the following address: list-serv@cmsa.berkeley.edu. Comments from interested parties around the world are also available at that address. Comments received by May 31 will be taken into full account by the editorial committee before a final version is presented to the Commission for approval. I urge all of you with opinions or comments on the draft, and its proposed changes, to voice your feelings via a letter to the International Commission on Zoological Nomenclature, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, United Kingdom. **Do it right away, even though the May 31 deadline has passed. Your voice will be heard.**

Some reactions to the draft have already appeared in the *Bull. of Zool. Nomenclature*, 52:294-302 (1995) and 53: 6-17 (1996), but many more are available at the e-mail address just mentioned. I have read over the draft and the following notes indicate some of the more significant changes proposed. In a few cases I have added my own reactions, or those of others, to specific changes. The most controversial proposal in the draft probably is the decision to make species names invariable, i.e., the original spelling of adjectival names does not change to agree with gender of the genus to which they may subsequently be assigned. In other words, no gender concord.

Arnold Menke

**Art. 8 (e) and Art. 11(b)** both affect the availability of scientific names published after 1996. In order to be available, the publication containing the **new names must be made available to Zoological Record, and the names recorded therein**. If this is not done within 5 years, the names are treated as unavailable.

I agree with the comments of Gary Rosenberg (p. 300 of *Bull. Zool. Nomencl.* cited above): "Ever since there has been a Code of Zoological Nomenclature it has been possible to determine whether a name is [permanently] available as soon as it is published. Under the 'five-year rule' in Article 11b, however, some names will become available immediately on publication but then become unavailable five years later. Inevitably some such names will have come into general use. I recommend that any name properly published in a work that the *Zoological Record* scans be automatically available. Such publications are listed in Zoological Record Serial Sources, the 5th edition of which noted that in September 1994 there were 6,564 serials on the scanned list. This would enable authors to choose a medium of publication that would immediately make their names permanently available. It would also mean that the *Zoological Record* would not be swamped with offprints from serials already scanned."

**Art. 16 (a):** The name of a new taxon **must be accompanied by a diagnosis** containing a summary of the characters that purport to differentiate the new taxon from **others** of the same rank within the next higher taxonomic category; those taxa being **explicitly cited by name**.

While this idea is a good one, it has an obvious flaw. It is not clear what is meant by "others". Does this mean the describer has to compare a new species with **all** others in the genus, or one, or just those regarded by the author to be similar to the new one? Obviously it would be impractical to compare a new species with all others in a large genus, say one containing 10 or more species. Generally most of us compare new taxa with what we regard as the most similar previously described ones.

**Art. 30:** Gender of genus-group names. After 1996 a genus-group name is treated as a word **without gender**.

**Art. 31:** After 1996 adjectival species epithets are to be treated as invariable, regardless of the gender of a genus to which they may be reassigned. In other words the spelling in the original description of the name is to be used.

**Art. 48:** Species names transferred to genera of different gender are not to be changed to agree in gender. In other words, the original spelling of adjectival names is not to be altered. Thus it is possible to have species names in a genus ending in -a, -us and -um.

Articles 30-31 and 48 all have to do with gender and abandonment of gender concord. In general, I agree with Sabrosky's comments on this issue (p. 298 of *Bull. Zool. Nomencl.* cited above): "I recognize that among taxonomists the day of competent knowledge of Latin and Greek is past. Although an 'old-timer', I know little Latin and no Greek, but I learned the rudiments of the language of the field in which I chose to work (*myia* = fly, *soma* = body, *stoma* = mouth, *pteron* = wing, and so on, together with the common gender endings of adjectives). It did not seem difficult to do. From this limited knowledge and from examples already established, plus help from the Appendices in the Code and from Roland Brown's excellent *Composition of Scientific Words*, one can devise appropriate generic names or determine genders. The proposed List of Available and Potentially Valid Names in Zoology could be made the basic guide for future taxonomists, and gender of generic names and gender concord could continue into the future as a routine convention."

Sabrosky continues: "I feel some words should be said for our present system. We should not cavalierly shed a long-established system without due reflection on its usefulness, evaluation of an abrupt change of direction, and careful scrutiny of the proposed replacement plan. The radical change of the language of scientific names proposed in the Draft has resulted in making rules more complex by the well-intentioned effort to respect – to a certain extent – the practice of the past by devising separate pre-1997 and post-1996 rules. But any protection for pre-1997 names will be upset in new combinations after 1996 (Article 31b), and conflicting zoological opinions could – and I am sure would – result in conflicting usages. I am not convinced that the

Draft's plan is either necessary or desirable, and it adds complexity."

Others have voiced similar sentiments in the *Bull. Zool. Nomencl.* cited above. Personally I think abandoning gender concord for species names is unnecessary. Can you imagine trying to remember, and keep straight in your mind, species names in a genus that may end in -a, -us, -um, etc.?



## NEW BOOKS

*The Hymenoptera of Costa Rica*. Edited by Paul E. Hanson and Ian D. Gauld. (1995). Oxford University Press, Oxford. xx+893 p. \$265.

For about a decade, Paul Hanson, Ian Gauld, and their colleagues operated many Malaise traps at about 40 different sites scattered over the entire country from sea level to 3000 meters. The tremendous quantities of insects taken in these traps (estimated at 4.5 million) provided the database from which the diversity of Costa Rican Hymenoptera could be measured and described. This was not the only source of faunal information, however. The fast growing collection of the Instituto Nacional de Biodiversidad de Costa Rica (INBio) was also utilized, as were other collections. *The Hymenoptera of Costa Rica* is the result. The authors estimate that 17,000-20,000 species of Hymenoptera occur in Costa Rica, 70% of which are undescribed.

The major portion of the book is devoted to family treatments written by various specialists, but the first 150 pages or so of this nearly 900 page book includes discussions of the geography, climate, and hymenopterous fauna of Costa Rica; an extensive section on the biology of Hymenoptera; the economic importance of Hymenoptera; a lengthy and well illustrated morphology section; and an overview of the evolution, classification and identification of the order. A glossary and extensive references section conclude the book.

The morphology chapter is excellent and the authors have attempted to standardize terms, but certain groups still have their "pet" terms, particularly for parts of the thorax and wings. Polymor-

phism and functional morphology are discussed at length, the latter dealing with oviposition and adaptations for nest building. This chapter concludes with a good discussion of larval morphology.

Chapter 5 on evolution, classification and identification provides a nice overview of current ideas on phylogeny of suborders and superfamilies. Because of demonstrated paraphyly in Symphyta and Parasitica, the traditional major divisions Symphyta and Apocrita and the subdivisions Parasitica and Aculeata are abandoned in favor of a superfamily-based system. Unresolved problem areas at the subfamily level are discussed. Only three superfamilies of aculeates are recognized (Chrysidoidea, Vespoidea and Apoidea), which is in agreement with modern cladistic analyses of this section of the Hymenoptera. Family classification is likewise up-to-date with discussions of differing modern opinions and unresolved problems. Four families are recognized in a new classification of Cynipoidea, and Vespidae is used sensu Carpenter (including Eumeninae and Masarinae). The treatment of Apoidea (including Sphecoidae) includes two families: Sphecidae and Apidae but with the cautionary note that Sphecidae is paraphyletic and doubtless will be split into at least two families eventually, a point with which I concur. Interestingly, the reduction of bee families to one, Apidae, is based on the premise that recognition of 9 or more bee families is "disproportionately high in comparison to other Hymenoptera". I agree with this thinking, and wonder why chalcid workers have not used it to reduce "doids" to one family instead of the 21 used in *Hymenoptera of Costa Rica*. In the authors' defense, they do indicate that some "doid" families are paraphyletic, and say "there are undoubtedly too many families of Chalcidoidea, and eventually [their] number will . . . be reduced." Chapter 5 concludes with illustrated keys to superfamilies based on winged adults, and a separate key to families of brachypterous and apterous adults.

Chapters 6-18 treat various major groups (i.e., superfamily or similar grouping) of Hymenoptera, each authored by specialists. Treatment styles vary from chapter to chapter, but most contain well illustrated keys to families, subfamilies, tribes, and sometimes genera of Costa Rica (keys include a few species in Scolioidea). In lieu of generic keys,

genera are often treated with short statements that may include characteristics, biology, distribution, numbers of species, etc. Habitus drawings show general appearance of taxa in each family. Usually each family treatment includes a discussion of the Costa Rican fauna of the group, as well as notation of useful taxonomic papers, a summation of biology and economic importance.

Chapter 10 on Cynipoidea by Nigel Fergusson presents a new family classification derived from his Ph.D. thesis. Four families are recognized: Cynipidae, Ibalidae (including Liopterinae and Austrocynipinae), Figitidae (including Charipinae, Eucollinae), and Himalocynipidae, a monotypic Old World family. The cladistic analysis that resulted in this arrangement resides in Fergusson's as yet unpublished thesis, and hopefully it will be in print soon, for what is presented here is a framework without much substantiation. This is made all the more urgent by the publication in 1995 of Ronquist's own "Phylogeny and early evolution of the Cynipoidea" in *Syst. Ent.* Interestingly, Ronquist also reduces the number of families, but there are differences from Fergusson's arrangement. Curiously no mention is made under Ibalidae of Ronquist and Nordlander's 1989 extensive morphology paper on *Ibalia*, nor is the revision of the family by Zhiwei and Nordlander, 1994, cited. The latter may have appeared too late for inclusion.

Chapter 13 covers Chrysidoidea. Of note is new synonymy in Bethyloidea by Finnamore and Gauld: *Apenesia* is a junior synonym of *Pristocera*. I could find no discussion of this, just "syn.n." (p. 477). Gordh and Móczár's world bethylid catalog of 1990 is not cited. Chapter 14 contains families of Vespoidea other than Vespidae, and, unfortunately, much needed keys to genera of Pompilidae and Mutillidae are not provided.

Chapter 18 by Terry Griswold, Frank Parker and Paul Hanson treats the bees, and, as mentioned above, is remarkable for the recognition of a single family, Apidae. Keys here are to subfamilies only, and it is unfortunate that the 1994 book *The Bee Genera of North and Central America* by Michener, McGinley and Danforth is not cited since it includes keys to genera in Spanish and English. Perhaps it appeared too late for inclusion.

To sum up, *The Hymenoptera of Costa Rica* contains a tremendous amount



of useful material. It is truly an impressive book, and Paul Hanson, Ian Gauld and their collaborators are to be congratulated for their achievement. Although this book focuses on the Costa Rican fauna, it will have much broader appeal and usage, particularly in Latin America. It should be in the library of anyone interested in Hymenoptera, although its high price will put it out of reach of many potential purchasers. What a pity. Latin Americans may have wished for a Spanish version, but the size of the book made that option prohibitive. The only negative comments I have are of an editorial nature. The publisher used page headers that are difficult to read. Font size and type used for tribal headers above discussions of tribes make them difficult to spot. For example, Charipini on page 261 should have been in bold face or made to stand out in some way. For a book that will be seen as much use as this one, a heavier binding should have been employed. My copy is already beginning to come apart.

**Arnold Menke**

*Natural History and Evolution of Paper Wasps.* Edited by Stefano Turillazzi and Mary Jane West-Eberhard. (1996). Oxford University Press, Oxford. xiv+400 p.

This book is a compilation of lectures presented at a workshop at Castiglioncello, Italy, in 1993 under the title of "Natural History and Evolution of an Animal Society: The Paper-Wasp Case". An unpublished lecture by the late Leo Pardi opens the volume with a brief history and analysis of the principal characteristics which have made *Polistes* a key group for modern sociobiology. This is followed by Jim Carpenter's important "Phylogeny and biogeography of *Polistes*." A new cladistic classification is presented in which only 4 subgenera are recognized. This was based on a very large sample of the known species, and thus appears well supported. The remainder of the book is devoted to papers on various aspects of biology of the genus; to papers analyzing the physiological and biochemical mechanisms regulating various social functions; and theoretical papers treating the origin and maintenance of sociality.

This book gives the reader an excellent overview of current knowledge of the social wasp genus *Polistes*. Oxford University Press is to be commended

for continuing to publish important books on Hymenoptera.

**Arnold Menke**

*The Pollen Wasps. Ecology and Natural History of the Masarinae.* Sarah K. Gess. (1996). Harvard University Press, Cambridge. xii+340 p. \$49.95.

This book is the result of over 20 years field study of the masarines in South Africa, as well as a review and synthesis of previously published information on these wasps from all parts of the world. The focus of the book is the biology and ecology of these fascinating creatures, which are most diversified in Africa.

Gess begins with an up-to-date review of the classification of the Masarinae. However, she does not accept some generic synonymy established by van der Vecht and Carpenter in 1990, or the broad concept of Vespoidea proposed by Brothers and Carpenter in 1993. Gess also uses the name Sphecoidea instead of the older name Apoidea.

The remaining chapters (the bulk of the book) cover biogeography, flower associations, life history, nesting, associates, pollination by masarines, and concludes with a very timely chapter on how increasing land use by man has affected pollen wasps in South Africa.

The final third of the book consists of three appendices. The first of these is an exhaustive list of flower records by zoogeographic region and wasp species, and includes sources. Appendix 2 lists plant species visited by masarines in South Africa and includes the names of non-masarine Hymenoptera as well (bees, sphecids, etc.). Appendix 3 is a synonymic catalog of described masarine wasps including known distribution.

*The Pollen Wasps* pulls together under one cover just about everything currently known about the masarine wasps. Gess has produced a scholarly text and her book will be a valuable resource for wasp biologists, ethologists, ecologists, environmentalists, etc.

**Arnold Menke**

*Key to the Insects of Russian Far East, vol. 4. Neuropteroidea, Mecoptera, Hymenoptera. Part 1.* P. A. Lehr, editor. (1995). St. Petersburg, 606 p. (in Russian).

I have not seen a copy of this book, but the Hymenoptera section covers the aculeate wasp families (ants and bees

excluded). Families included and respective authors are as follows: Dryinidae by Ponomarenko, Embolemidae by Belokobylskij, Bethyidae by Gorbatovskij, Tiphidae by Gorbatovskij, Sapygidae by Kurzenko, Vespidae by Kurzenko, Scoliididae by Lelej, Mutillidae by Lelej, Pompilidae by Lelej, and Sphecidae by Nemkov, Kazenas, Budrys and Antropov. Price and availability unknown.

**Arnold Menke**

*Solitary Wasps* (second edition). Peter F. Yeo & Sarah A. Corbet. (1995). Naturalists' Handbooks 3, 68 p. Hardback £13.00, paperback £7.95. Richmond Publishing Co., PO Box 963, Slough, SL2 3RS England.

This handbook is designed for the fauna of the British Isles, and was first published in 1983. This new edition upgrades the classification to that used by Gauld and Bolton in *The Hymenoptera*, adds biological information published since 1983, and adds species new to the British fauna. The aculeate wasps treated in this nice looking guide are the Sapygidae, Tiphidae, Mutillidae, Eumenidae and Sphecidae although the last family contains most of the genera and species. Identification is the primary thrust of *Solitary Wasps* and it contains pictorial keys as well as the standard dichotomous type - all nicely illustrated for ease of use. There is also a chart that can be used to identify wasps on the basis of their prey and nesting habits. Many wasps are illustrated with habitus drawings on eighth plates and four of these are in color. All in all a very attractive and useful treatise.

**Arnold Menke**

*Towards Stability in the Names of Animals. A History of the International Commission on Zoological Nomenclature 1895-1995.* Richard V. Melville. (1995). Henry Ling Limited, Dorchester. xii+92 p. \$50.00.

For those of you with a nomenclatural bent, and a fondness for the history of the nomenclature, this little book will be an attractive package. It begins with pre-Linnaean concepts of putting names on things, then Linnaeus and binomial nomenclature are discussed. The subsequent development of various Codes and rules for scientific names are covered nicely. This leads into a history of the International Commission on Zoo-

logical Nomenclature, its various leaders, and the development of various editions of the modern Code now in use. Pictures and photographs of important personages are included.

#### Arnold Menke

*Iconography of Forest Insects in Hunan China*. 1992. 1473 p. Hymenoptera sections edited by Wu Yanru (in Chinese with brief statements in English). Bethyloidea and Chrysidoidea on page 1297; Scolioidea, p. 1297-1301 by Wang Jinhan; Vespoidea, p. 1321-1331, by Li Tie-sheng; Sphecoidea, p. 1331-1335, by Zhou Qin Wu Yan-ru.

This is essentially a pictorial conspectus of insects in Hunan Province. In the aculeates, each species is represented by a dorsal or lateral habitus drawing, but for westerners, that ends its usefulness because the text is in Chinese except for the scientific names. I found occasional misspellings of these names, and their authors.

#### Arnold Menke

*Brethren of the Net, American Entomology, 1840-1880*. W. Conner Sorensen. (1995). University of Alabama Press, Tuscaloosa, Alabama 335487-0380. xvi+357 p. \$59.95.

I have only glanced through this book but it appears to be a very interesting and scholarly treatise. I quote from the dustjacket: "Sorensen asks how it came about that, within the span of forty years, the American entomological community developed from a few gentlemen naturalists with primary links to Europe to a thriving scientific community exercising world leadership in entomological science. By the 1880's the entomologists constituted the largest single group of American zoologists and the largest group of ecologists in the world. While rooted in the British natural history tradition, these individuals developed a distinctive American style of entomological investigation focusing on insect pests that threaten crop production in a market-oriented agriculture. Based primarily on the correspondence of American entomologists, *Brethren of the Net* draws together information from diverse sources to illuminate an important chapter in the history of American science. The book's real strength is that it is a marvelous compendium of information about the careers and issues of

many little-known American men and women interested in entomological musings. Sorensen is at his best in discussing scientific concepts – he has made himself a master of the relevant sciences, and it shows. His discussions of the nomenclature problem, the theory of evolution, the type concept, and the notion of the balance of nature are outstanding."

#### Arnold Menke

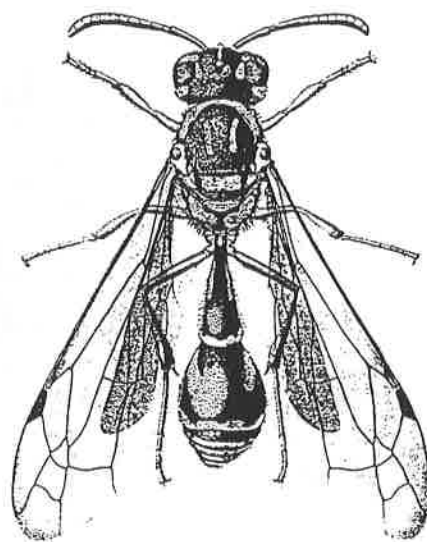


### PUBLICATION NOTICE

My revision of the world *Gastrosericus* was published on 23 October 1995 as California Academy of Sciences Memoir No. 18. To my regret, I have received only five free copies, and I apologize for not being able to send copies to all persons and institutions that provided material for study or helped in any other way.

The revision can be ordered from the Scientific Publications, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118, USA, at the price of \$40 plus \$3.25 for shipping and handling (as high as it is, the price of \$40 represents only the production costs). Checks should be issued to California Academy of Sciences.

#### Wojciech J. Pulawski



*Flaveptus flavobalteatus* (Cameron)  
(Eumenidae)

### ERRATA ON THE REVISED EDITION OF THE YELLOWJACKETS OF AMERICA NORTH OF MEXICO BY AKRE, ET AL.

The specimens purported in the revised handbook on yellowjackets to be Mexican *Vespula squamosa* lacking thoracic stripes came to my attention only after the book was already in the hands of the publisher. Unfortunately, examination showed these specimens not to be *squamosa* but simply a somewhat melanistic variant of *maculifrons*. I have yet to see any *squamosa* lacking these stripes.

#### Robert S. Jacobson

P.O. Box 2164,  
Lenoir, NC 28645



### BIG BLUE BOOK ERRATA Installment 24 (Final)

- p. 39, LC, L 23 from bottom: change 1881a to 1880a.
- p. 39, RC, L 35: 1922 is correct, not 1921b. Change 1921 to 1922 on L 36.
- p. 53, LC, L 10: 1936c is correct, not 1937a.
- p. 53, RC, L 16: 1900 is correct, not 1899.
- p. 115, RC, L 27: delete "new synonym by Menke". Ducke 1901 established this synonymy.
- p. 116, LC, L 33: lectotype may be illegal because type locality was Port-au-Prince, Haiti.
- p. 123, RC, L3 from bottom: *clavigera* Smith, 1856, should be removed from synonymy here and transferred to the *Sphex* checklist, p. 114, LC, as a species from Australia.
- p. 127, LC, L 3 from bottom: *mandarinus* is correct.
- p. 133, RC, L 8 from bottom: *albopictinatus* is correct.
- p. 134, LC, L 13-14 from bottom: delete entry. Eversmann did not describe *subfuscatus* as a new species.
- p. 134, LC, L 31-34: The proper name for this species is *chilensis* (Spinola). Lepeletier's species was *chiliensis*, thus Spinola's name was not a junior homonym. Transfer

- species to p. 133, LC, with *spinola* Smith a synonym.
- p. 139, RC, L 30: change 1921 to 1922.
- p. 144, LC, L 10 from bottom: delete "new synonym by Menke". Smith's *erythropus* was a replacement name.
- p. 144, RC, L 31-33: This was treated as a subspecies of *atrocyanea* by de Beaumont 1956a:172. Transfer *masinissa* to LC, as a subspecies.
- p. 146, LC, L 8 from bottom: 1883 is correct, not 1882.
- p. 152, LC, L 36: de Beaumont 1970 (Acta Musei Moraviae, Suppl. 49: 385-406; erroneously dated 1969) on p. 388 treated *rubra* as a subspecies of *heydeni* from south central Asia. It should be placed between spp. *rubriventris* and *sarda*.
- p. 162, LC, L 17 from bottom: *simplex* is a junior primary homonym of *Psen simplex* Tournier, 1889, which is now in *Psenulus*.
- p. 165, LC, L 5 from bottom: *chrysomallus* is correct, not *chrysomaila*.
- p. 179, RC, L 18 from bottom: *vallicolae* is correct, not *vallicollae*.
- p. 264, RC, L 25 from bottom: 1880 is correct, not 1881.
- p. 264, LC, L 10: 1880 is correct, not 1881.
- p. 265, LC, last L: 1880 is correct, not 1881. Note: *harpax* is a valid species and the name should not be indented.
- p. 272, LC, L 6: correct date is 1880 as originally printed.
- p. 336, LC, L 11 from bottom: 1905 is correct, not 1904.
- p. 430, RC, insert after L 13 from bottom as synonym:  
*rubida* Schirmer, 1915  
(*Ceratocolus*).
- p. 449, RC, L 5: delete *annulatus* entry. Not a new species.
- p. 458, LC, L 12 from bottom: 1940 is correct, not 1947.
- p. 491, LC, add as last line: posite tegula; prescutellar sulcus fovea-
- p. 505, RC, insert in checklist of *Eogorytes*:  
*gaoganus* Sonan, 1940 (*Hoplilus*) Taiwan.  
[Note: this species was omitted from the book and assignment here to *Eogorytes* is presumptive only.]
- p. 519, fig. 178, explanation of figures should read: E, gastral segments IV-VI lateral; F, metapleural area, left.

- p. 526, RC, L 9 from bottom: 1888 is correct, not 1887.
- p. 529, LC, L 8: 1900 is correct, not 1899.
- p. 564, LC, L 5 from bottom: *kruegeri* is correct, not *krugeri*.
- p. 564, LC, Last L: Mali is correct, not Nigeria.
- p. 591, LC, L 17: change 1948 to 1948-1949.
- p. 591, RC, L 17: 1949 is correct, not 1948.
- p. 591, RC, L 20: 1949 is correct, not 1948.
- p. 591, RC, L 23: 1949 is correct, not 1948.
- p. 591, RC, L 31: 1949 is correct, not 1948.
- p. 591, RC, L 34: 1949 is correct, not 1948.
- p. 591, RC, L 8 from bottom: 1949 is correct, not 1948.
- p. 592, LC, L 10: 1949 is correct, not 1948.
- p. 592, RC, L 1: 1949 is correct, not 1948.
- p. 611, LC, insert after L 30: Mann, B. P., 1883. False dates. Psyche 4:31-32.
- p. 614, RC, L 31: change to 1936c.
- p. 615, LC, L 50-59: change 1881a and 1881b to 1880a and 1880b, change 1881c to 1880-1881. Change (dating after Britton and Howard, 1921) to dating after Mann 1883. For

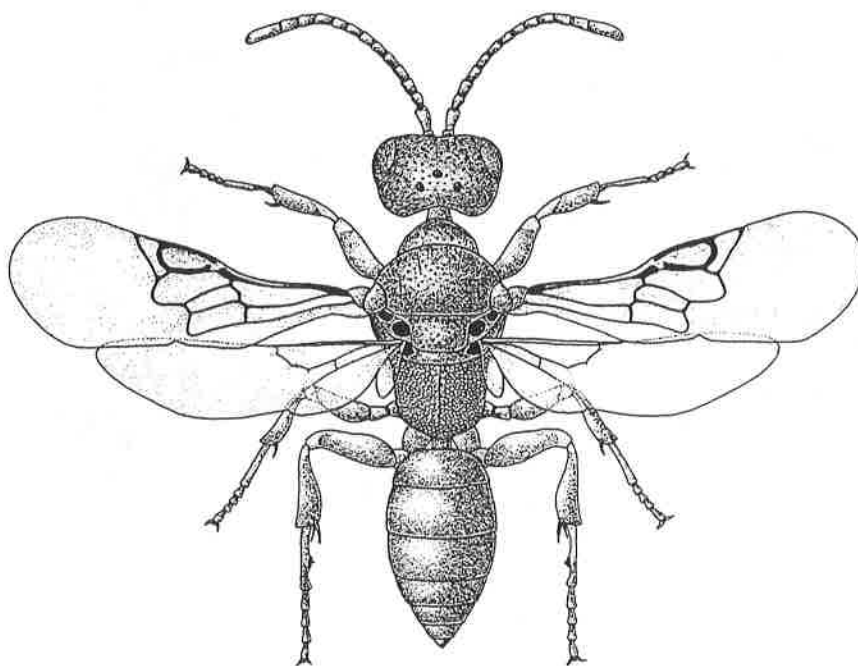
1880-1881 paper, correct pages are 397-405 and dating is as follows: pp. 397-400 = 1880, pp. 401-405 = 1881.

- p. 618, LC, L 3: 1922 is correct, not 1921b.
- p. 618, RC, L 13 from bottom: date is 1948-1949, Pages 165-180 were published Jan. 31, 1949.
- p. 622, RC, L 20 from bottom: 1900 is correct, not 1899.

### Those Silly Sensillae

There was considerable comment on the proper spelling of the singular and plural forms of the term sensillum in *Antenna*, vol. 20, pp. 5-6. Based on the comments of W. R. Dolling, it appears that sensillum is the proper singular and sensilla is plural. Some authors use sensilla for the singular and sensillae for the plural – both are incorrect. Dolling also points out other words that are sometimes improperly used: sinus is both singular and plural and the same is true for ductus. Jugum is singular and juga is plural (not jugae), Caecum and caeca is another example. The word exuviae is always plural; there is no singular. Magnum opus is singular and cannot be pluralized.

Arnold Menke



*Ammoplanus* (Sphecidae)

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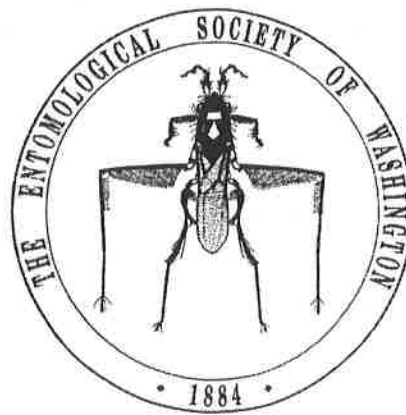
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Parasitic Wasps of the Subfamily Eupelminae: Classification and Revision of World Genera (Hymenoptera: Chalcidoidea, Eupelmidae). By Gary A. P. Gibson. *Memoirs on Entomology, International*, Vol. 5. December 1995. ISBN: 1-56665-060-7.

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## ADVANCE NOTICE

Fourth Conference of the International Society of Hymenopterists.  
Canberra, AUSTRALIA  
6-11 January 1999

Following the highly successful 3rd Conference held in 1995 at the University of California, Davis the 4th Conference will be held at the Australian National University, Canberra. It will follow shortly after the 13th International Congress of the IUSSI (International Union for the Study of Social Insects) to be held in Adelaide, 29th December 1998 to 4th January 1999.

Further information will be available at the end of this year from the Organising Committee, convened jointly by Drs. Ian Naumann and Andy Austin. The Conference address and contact is: 4th Conference of the International Society of Hymenopterists, c/o CSIRO, Division of Entomology, P.O. Box 1700 Canberra, ACT 2601 AUSTRALIA (fax: 61-6-246.4264; email: iann@ento.csiro.au)

**EINLADUNG**  
zur  
**2. HYMENOPTEROLOGEN-TAGUNG**  
STUTTGART  
vom 4. bis 6. Oktober  
1996

Nach dem großen Erfolg der ersten Stuttgarter Hymenopterologentagung findet im Oktober 1996 eine zweite Tagung in Stuttgart statt. Sie soll wieder in den Räumen des Staatlichen Museums für Naturkunde, am Löwentor, stattfinden. Das Museum ist von Stuttgart Hauptbahnhof mit den S-Bahnlinien 4, 5 und 6 in ca. 5 Minuten erreichbar (Haltestelle: Nordbahnhof).

**Hinweise zu den Vorträgen  
und Postern**

● Thematischer Schwerpunkt der wissenschaftlichen Beiträge sollen wieder die **Aculeata** sein. Darüber hinaus sind aber auch Beiträge zum Themenbereich **"Hymenoptera allgemein"** erwünscht.

**Fachrichtungen:**

Systematik, Taxonomie, Phylogenetik, Funktionsmorphologie, Co-Evolution, Ethologie, Ökologie, Faunistik, Biologische Vielfalt, Artengefährdung - Artenschutz etc.

● Die **Vortragszeit** sollte 20 Minuten nicht überschreiten, damit ausreichend Zeit für Diskussionen bleibt.

● Das Format der Stellwände für die **Poster** beträgt 215 x 75 cm; die Befestigung der Poster erfolgt mit Klebestreifen oder Doppelklebefolie, nicht mit Reißnägeln! Bei der Postersession am Sonnabend-nachmittag wird jeder Aussteller gebeten, etwa 5 Minuten sein Poster vorzustellen.

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● Für die entstehenden **Unkosten** (Porto, Druck, Papier, Kaffee, belegte Brote, Gebäck, etc.) bitten wir um einen Beitrag von DM 30.-, bzw. DM 15.- für Studenten (Überweisung erbeten bis zum **1.8.1996**).

Zu überweisen an: Dr. Till Osten

Kennwort: "Hymenopterologen-Tagung 1996"

Kreissparkasse Ludwigsburg, BRD

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● Das **Programm** wird voraussichtlich im Juli verschickt.

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Tagung, Stuttgart  
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● Ich werde an dieser Tagung teilnehmen:

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● Ich bin an **Informationen** zur nächsten "Hymenopterologen Tagung" interessiert ☐

● Ich werde am Freitag den 4. Oktober, am Begrüßungstreffen teilnehmen (Gaststätte wird bei der 2. Aussendung bekanntgegeben).

wahrscheinlich ☐ nein ☐

Ich werde am Samstag, den 5. Oktober an dem **geselligen Beisammensein teilnehmen** (Gaststätte wird bei der 2. Aussendung bekanntgegeben).

ja ☐ nein ☐

☐ Ich möchte einen **Vortrag** halten.  
Titel des Vortrages:

● Welche technischen Hilfsmittel werden benötigt:

1 Dia-Projektor ☐

2 Dia-Projektoren ☐

Overheadprojektor ☐

Ich könnte diesen Beitrag auch als Poster präsentieren.

☐ wenn nötig ☐ keinesfalls

☐ Ich möchte ein **Poster** vorstellen. Titel:

Den **Unkostenbeitrag** von DM 30.- bzw. DM 15.- (Studenten)

☐ habe ich bereits überwiesen

☐ überweise ich bis zum 1.8.96

● Anregungen zu Themen und zur Durchführung der nächsten "Hymenopterologen-Tagung":

● Meine Adresse lautet:

Ort, Datum, Unterschrift

**Dr. Till Osten**  
Staatliches Museum für Naturkunde  
Rosenstein 1  
D-70191 Stuttgart  
Fax: 0711/8936-100

# IVth INTERNATIONAL COLLOQUIUM ON SOCIAL INSECTS

## St. Petersburg, Russia, 18 - 24 August, 1996

### SECOND ANNOUNCEMENT

**GENERAL INFORMATION.** The Colloquium is organized by the RUSSIAN LANGUAGE SECTION OF THE INTERNATIONAL UNION FOR THE STUDY OF SOCIAL INSECTS. It will be held at St. Petersburg State University - the oldest Russian university, in the historic centre of St. Petersburg. The Colloquium will cover all aspects of behaviour, ecology and physiology of social and presocial arthropods. The official languages of the Colloquium will be Russian and English. The scientific meetings will be scheduled for four full days, the other two days being devoted to the social programme.

**TALKS** will be limited to 30 minutes including questions and discussion. Overhead and standard 50x50 mm slides projector will be available. Poster presentations are also possible. The poster size is not limited.

**ABSTRACTS OF THE TALKS AND POSTERS** may be submitted in typewritten or preferably in electronic form as an ASCII file without any formatting on an IBM-formatted diskette or via E-mail. The length of the text should not exceed one single spaced page (A4 paper, all margins of 1 inch, font size 12 pt).

**COLLOQUIUM PROCEEDINGS.** Contributed talks and posters will be published later as papers (up to 25 typewritten double spaced pages) in the IVth volume of the PROCEEDINGS OF THE COLLOQUIA ON SOCIAL INSECTS. The authors will receive 50 reprints of each article without charge. The manuscripts should be presented to the Organizing Committee during the Colloquium. The instructions for preparing the manuscripts will be included into the Third Announcement.

**REGISTRATION** can be completed by mailing the Registration Form or preferably via E-mail. Each participant must fill out and send the Registration Form along with the text of the abstract. There is no special deadline for registration but abstracts received by Organizing Committee after 1 July 1996 will not be included into the Abstracts volume.

**THE PARTICIPATION FEE** is \$100 if paid before 1 June and \$120 after 1 June 1996. The participation fee for students is correspondingly \$50 and \$60, for accompanying persons - \$40 and \$50. The participation fee includes attendance at scientific sessions, colloquium materials including the abstracts volume, welcome party, coffee breaks, an excursion to the city centre and the Hermitage and the publication of PROCEEDINGS after the Colloquium.

**ACCOMMODATIONS** will be available at the University Hotel for \$40-50 per night for an apartment with single or double room, a kitchen and a bathroom; sharing a double rooms is also available at half this price. Breakfast is not included. There are a cafe and a snack-bar and other facilities in the hotel. The booking fee will be 50% of the rate per room per night. You may pay this amount after your arrival. The hotel reservations will be made only after your participation fee has arrived. Accommodations in higher class hotels in the city can also be arranged upon special request but at substantially higher prices.

**BREAKFASTS AND LUNCHES** will be served to the participants in the University canteen. Information on prices will be published in the Third Announcement.

**TRANSPORTATION** by car or minibus from Pulkovo-2 Airport to the registration desk and the hotel, as well as back to the airport, will be available at additional expence because foreigners may encounter serious difficulties with public transportation or taxi cabs at the airport.

The **SOCIAL PROGRAMME** will include excursions to the city centre, Hermitage, the palace and parks of Petershoff, the Zoological Museum, the Russian ballet and the Farewell Banquet. The prices will be published in the Third Announcement.

**METHODS OF PAYMENT.** The participation fee should be paid by sending a cheque made payable to Vladilen E. Kipyatkov or by bank transfer to: Industry & Construction Bank Plc, St. Petersburg Branch, 38 Nevski prospect, St. Petersburg, 191011, Russia; SWIFT ICSRU2P, Account No 37070670373. Please attach a copy of the transfer order receipt to the registration form. If you pay by cheque, please add 11% of total amount for bank charges.

The **THIRD ANNOUNCEMENT** will be sent to registered participants in June 1996.

**OFFICIAL INVITATIONS** can be sent upon request if necessary for getting visas and other formalities.

**COMMUNICATION:** Dr. Vladilen E. Kipyatkov, President of IUSSI Russian Language Section, Department of Entomology, Faculty of Biology, St. Petersburg State University, 7/9 Universitetskaya naberezhnaya, St. Petersburg 199034, RUSSIA. Tel.: (+7) 812 218-96-79; Fax: (+7) 812 218-08-52, 218-13-46.

PLEASE, USE ELECTRONIC MAIL FOR FAST COMMUNICATION!  
E-mail address: vk@socium.usr.pu.ru

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IVth International Colloquium on Social Insects  
St. Petersburg, Russia, 18 - 24 August, 1996

### REGISTRATION FORM

To be returned to:

Dr. V. E. Kipyatkov  
Department of Entomology  
St. Petersburg State University  
7/9 Universitetskaya emb.  
St. Petersburg, 199034, RUSSIA.

(Please, print)

Last name: ..... First name: .....

Address: .....

Institution: .....

Fax: ..... E-mail: .....

I wish to register for the IVth International Colloquium on Social Insects.

I will be participating: with an oral presentation.....  
with a poster..... as a guest.....

The abstract is enclosed .....

Accompanying person(s): .....

I am submitting this form along with \$..... participation fee  
+ \$..... bank charges.

Method of payment:

\* bank cheque payable to: Vladilen E. Kipyatkov  
enclosed.....

\* bank transfer to: Industry & Construction Bank Plc, St.  
Petersburg Branch, 38 Nevski prospect, St. Petersburg, 191011,  
Russia; SWIFT ICSRU2P, Account No 37070670373.

(Photocopy enclosed) .....

Please, make a reservation for me:

in the University Hotel ..... in a higher class hotel .....  
single room ..... double room ..... share a double room .....

I need an official invitation: Yes ..... No .....

Date ..... Signature .....

\* \* \*

Dr. Vladilen E. Kipyatkov

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Fax: (+7) 812 2180852