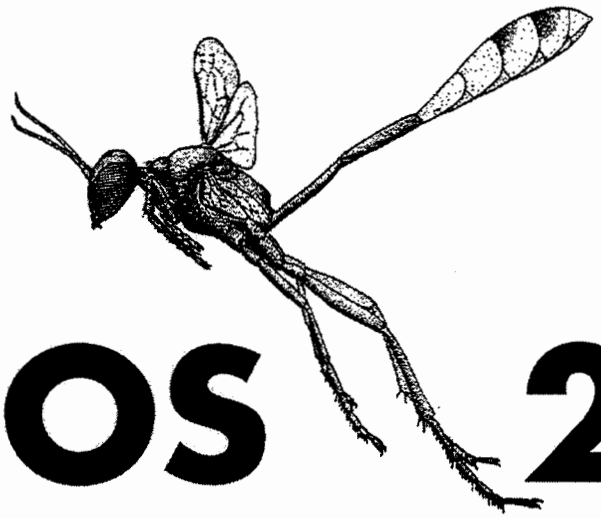

DECEMBER 1994

# SPHECOS 28

A FORUM FOR ACULEATE WASP RESEARCHERS

## EDITORIAL FRAGMENTA FROM THE MUD D'AUB

Donations of money have continued to come in for the **Sphecos** reproduction fund. This kind of support is very much appreciated. The names of recent donors are listed below. If I have omitted the names of any donors please let me know, because they are unintentional, and I want to acknowledge all contributors.

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Rob Tuckerman
Hans-Urich Thomas

In this issue we are listing the addresses of all recipients of the newsletter. It has been quite a few years since we have had such a list. When known to us, we have included e-mail addresses, FAX and telephone numbers. Museum's and libraries receiving Sphecos are listed separately.

Those of you that read my trip report (pp. 20-22) will learn that I am planning to retire in about two years (sometime in the Fall of 1996). Nancy and I have bought a retirement home near Bisbee, Arizona, and will move there after I retire. Continuation of **Sphecos** by me at that point may become difficult for several reasons. No longer will I have access to current literature (aside from what my colleagues may send me). Nancy and I plan to do a lot of exploring in the southwest, collecting wasps, and, yes, leading the "good life". I hope to continue my wasp research and also my railroad history writing. This scenario may not leave much time for **Sphecos**. It might be possible for me to continue to assemble and organize material sent to me for the newsletter, just as I do now, but entering all that data into a computer, arranging for reproduction of **Sphecos**, and then mailing it, will probably not be feasible after I retire. All this leads up to one conclusion: someone else may have to assume editorial control. The obvious question is, why can't Terry Nuhn just take over? Well he is employed by the USDA as a support person for scientific staff. With me gone, it is doubtful that the laboratory will permit him to take on the job of producing **Sphecos**. I am not happy about the prospect of **Sphecos** expiring. Surely among the readership of some 600 individuals there is someone willing and able to take over the production and mailing of **Sphecos**. I would like to hear from anyone who wants to volunteer. I also hope that in two years I won't have to say that **Sphecos** is coming to an end because no one has come forward to replace this editor.

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The Mud D'aub

**Arnold Menke** and **Fernando Fernandez** (Apartado Aereo 77038, Santa Fé de Bogotá 2 D.E., Colombia) have nearly completed their manuscript containing keys to genera and higher taxa of Neotropical Sphecidae. This MS is aimed at Latin American workers and will be in Spanish. The keys will be illustrated using many figures from Sphecid Wasps of the World. **Arnold Menke** and **Woj Pulawski** are working on a manuscript in which the correct scientific names and status of European species in the *Sphex flavipennis* group are clarified. Meanwhile, Arnold has plunged into his revision of New World *Ammophila,* and is threatening to lock his office door and not answer the telephone for the next 2 years.

**Gabriela Pérez-Lachaud** (CIES, Carretera Antiguo aeropuerto Km. 2.5, Apdo. Postal No. 36, 30700, Tapachula, Chiapas, México) writes: "Some 10 years ago I attended the IV Hymenoptera Parasitica Training Session at the University of Maryland. Since then I have worked on chalcidoid wasps and moved to France where I got my Ph. D. at the Universite Paul Sabatier de Toulouse. My dissertation was on mating behavior and reproductive strategies of *Chryseida bennetti* Burks, a parasitoid of the bean weevil. Recently, my husband and I moved back to Mexico and now I am beginning to work on the sexual and host selection behavior of two exotic bethylids (*Cephalonomia stephanoderis* and *Prorops nasuta*) introduced to Mexico to control the coffee berry borer (*Hypothenemus hampei*)."

**Rob Tuckerman** (82 Dublin St., Peterborough, Ontario K9H 3A9 Canada) has recently moved from Toronto. He writes: "Although my 'official' studies at the University of Toronto concerned bees (ground nesting Halictidae – *Selandonia confusus*), 4 years of haunting dry sandy places introduced me to the local wasp fauna. I'm currently earning my keep as an illustrator and despite the protests of my fellow bee types, the wasps really are much more elegant and artistic creatures than their hairy relatives. The move from Toronto has also moved me further north and away from the sandy areas and abandoned sand pits of the Oak Ridges moraine (wasp and bee heaven), but the shield area here is proving to be equally interesting as I try and become familiar with some new species and different habitats."

## RESEARCH MATERIAL REQUESTED

After my short review of the Asiatic species of the oxybeline genus *Belomicroides* was published, I began to gather material for a world revision. I have already received some North African specimens from Dr. A. Mochi (Rome, Italy), but I hope to study all available material of this genus as well as material of the Old World *Belomicrus*. I have been working on the latter genus for five years and my list of just the Palearctic representatives has already exceeded 75 species (including 14 in press and 10 undescribed). I would be very grateful if any of my colleagues who possess any available specimens of these genera would lend them to me (including all American representatives).

This autumn I visited the USA for a month and a half and had the opportunity to study K. Tsuneki's collection in the USNM (Washington, DC) and in particular to study a lot of North American material of the nominative subgenus *Trypoxylon* (Sphecidae: Crabroninae) for my Holarctic revision of the group (The Palearctic part was finished two years ago but has not been published). I have had a very useful time in Washington, San Francisco, Lawrence, Kansas, and New York, and now I have solved almost all the difficult problems in the North American fauna. I also discovered some species which are not known from the USA. Unfortunately, they are represented by unique specimens from Texas and Florida. For this reason I would be very grateful if any of my colleagues could allow me to borrow any available specimens of *Trypoxylon* (s.str.) collected in the southern states of the USA and in Mexico (any other material of the subgenus from the Holarctic region would also be appreciated)."

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## HELP NEEDED

### Schrottky Type's Mystery: Any Clues?

*by*

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Trying to recognize the identity of the plethora of South American names in the genus *Exomalopsis*, I got stuck with a problem: where are the types of the species described by Schrottky? Well, this is not surprising to anyone who has ever worked with taxonomy of Neotropical Hymenoptera. Kurt Schrottky (who frequently signed his papers as C. Schrottky) was a German (?) entomologist who worked for many years in Brazil, Argentina and Paraguay. Between 1901 and 1921 he published some 50 papers describing many genera and hundreds of species. He kept a large Hymenoptera collection at Puerto Bertoni, which was partially destroyed when revolutionary soldiers invaded his home.

The types of the species described by him while he was working in São Paulo are, for the most part, in the collection of the Museu de Zoologia da Universidade de São Paulo. I found some specimens of *Exomalopsis* identified by him among the bees of the Museo de La Plata, and insects collected by him are said to be at the Instituto Oswaldo Cruz, in Rio de Janeiro. Holotypes of *Exomalopsis fulvipennis, E. elephantopodis minor* and *E. ypirangensis* are at São Paulo; the types of *E. hibema, E. melochiae, E. paraguayensis, E. rufipes* and *E. vernoniae*, however, are lost. There are specimens identified by Schrottky of *E. hibema, E. elephantopodis* and *E. vernoniae*, from or from near their type localities, that are good potential neotypes. However, there is some information suggesting that types of Schrottky may still be recovered.

It is interesting that, although Townes & Townes (1966) and Grissell (1979) have cited an obituary, published in 1938 by Sachtleben, none of them commented explicitly on an important piece of information given there: according to Sachtleben, the remaining bees of Schrottky's collection were acquired by someone called Hans Jacob, who lived in Hohenau, near Concepción, Paraguay.

## OBITUARY

**Roger D. Akre**
**(1937-1994)**

Roger D. Akre, professor of entomology at Washington State University, died on 16 August 1994. He was born 27 March 1937 in northern Minnesota and was the youngest of 11 children. Working at the Blandin Paper Company, he financed his college education and graduated from the University of Minnesota at Duluth in 1960. Roger attended graduate school at Kansas State University where he was a National Education Defense Act Fellow. He worked with Carl W. Rettenmeyer, earning an M.S. in 1962 and Ph.D. in 1964. Research on his dissertation topic, myrmecophiles associated with Neotropical army ants, was continued at WSU until 1970.

In 1964 Roger joined the faculty at Washington State University where he served until his death. Early in his career he was a visiting scientist with the Organization of Tropical Studies at San Jose and Cerro de la Muerte, Costa Rica and Barro Colorado Island and Tropical Test Center, Panama.

Roger was an outstanding teacher and prolific researcher. During his career at WSU he taught General Entomology, Agricultural Entomology, Urban Entomology, Insect Morphology, Insect Behavior, Insect Photography, and Insects and People. He was awarded the University's R. M. Wade Award for Excellence in Teaching in 1969 and was the ESA Pacific Branch nominee for the Society's teaching award in 1986.

Roger had a special interest in teaching at all educational levels. He served as a member and chair (1988) of the Educational and Training Committee of the ESA. He also participated in a number of workshops for teachers including numerous presentations at the Washington State Science Teachers Association and the National Science Teachers Association. Roger was also a much sought after speaker by several Pest Control Operator organizations. He also made presentations to local school groups, science camps, and scouting organizations.

Throughout his career, Roger was involved in numerous research pursuits which centered around social insects and urban entomology. His current projects included studies of yellowjackets, *Microdon* (Diptera: Syrphidae), carpenter ants, and pestiferous spiders, including *Tegenaria agrestis*. Roger had recently been selected for two awards in urban entomology: the Orkin University Recognition Program Award and the National Conference on Urban Entomology Distinguished Achievement Award. He was also a regular reviewer for several governmental and private granting organizations .

Roger was a supporter of entomology at all levels. He served for many years as the Secretary-Treasurer of the Washington State Entomological Society. He also edited the Society's journal, Melanderia. He was a member of the Entomological Society of America, Florida Entomological Society, Kansas Entomological Society, International Union for the Study of Social Insects (IUSSI), Entomological Society of British Columbia, International Society of Hymenopterists, Cambridge Entomological Society, and Sigma Xi. He served as President and Vice-President of the WSU chapter of Sigma Xi and President of the North American Section of the IUSSI.

Roger was a prolific writer. He authored over 80 refereed, 23 semitechnical, and 36 Cooperative Extension publications. Additionally, he wrote 11 book chapters and 32 articles for the popular press including trade journals. Because of his work with yellowjackets, carpenter ants, and spiders, he was the subject of numerous newspaper and magazine articles. In 1993, Roger coauthored the book Insects Did it 1st, with E. Paul Catts and Greg Paulson. Roger was also a regular reviewer for several scientific journals.

A hobby in photography, begun in high school, bore fruit in literally thousands of slides and photographs, many of which were used as covers for magazines. Roger's slides were used by many students and colleagues for presentations, classes, and publications. In recent years, he used video technology to enhance his teaching and research activities.

Roger loved the out-of-doors and enjoyed hunting and fishing. Among his proudest accomplishments was a 22 lb. steelhead. He always included students and colleagues in his plans and loved to guide the novice or less proficient to his favorite fishing or hunting spot. More recent hobbies included leather tooling and making wooden toys for his grandchildren.

Given all of his accomplishments, Roger's greatest legacy will be the students that he helped. He worked very closely with his graduate students and continued close associations with almost all of them after graduation. Roger, however, went well beyond helping his own students. He never wavered in his support for any student in need. Be it a few packs of insect pins, help with travel to a scientific meeting, or co-signing a loan for a vehicle, Roger was always there to help. Roger encouraged everyone in their scientific pursuits, a fact that is borne out by the number of papers he co-authored with students. He reviewed hundreds of manuscripts, for colleagues, usually within 24 hours.

Roger is survived by his wife, Edith, two daughters, four grandchildren, three brothers, and a sister.

Memorial contributions may be made, in Roger's name, to the C.A. Johansen Scholarship Fund in care of the Department of Entomology, Washington State University, Pullman, WA 99164-6382.

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## THE AUTOBIOGRAPHY OF KATSUJI TSUNEKI

We announced in **Sphecos** 27 that we hoped to obtain an English translation of Tsuneki's autobiography. Thanks to the considerable efforts of Eiji Ikeda we have one. Eiji's translation was edited by me to improve English and simplify some of the syntax, but much of the quaint awkwardness remains. Material in brackets [ ] was added by the translator or your editor. We owe a great debt of thanks to Eiji for translating this piece, because it probably was a time consuming and difficult task.

This story was originally published in 1987 in the last issue of the *Hymenopterists Communication*, number 27, pages 152-163. Tsuneki regarded this essay as only a collection of excerpts from a book that he wanted to publish.

money, and after one year, he "bought" the position of a second lieutenant. I never volunteered for the army because I studied communism and European philosophy; moreover I was poor. However, I received notice of supplementary enlistment just before my graduation. I had to join the army on the following day. I knew later that the army surgeon of the balloon corps was in the same class of the same school of the surgeon who had examined me for conscription, and knew me very well.

I was resigned to my fate. I decided to faithfully serve in the army, thinking that it was for the Japanese people, not for the Tenno [Emperor]. The captain was probably informed of my draft evasion, and told the group leader to be cautious of me. However, he immediately knew that my ear did not work, and that I was honest. One day he told me to make an effort to be a model soldier because the experience of the army was not wasteful. I was deeply moved. I served more seriously in the army because he recognized that I was truthful.

After I finished the basic training in the balloon corps (military drills, battle practices, operation of balloons), the captain kindly made me a meteorological soldier who was not so busy (and a little difficult for ordinary soldiers). My work included regular meteorological observations, observation of wind direction and wind velocity at height intervals of 100m, making weather charts, and weather forecasts. I had already studied meteorology in school, but I studied it more because I was interested in it. In particular, every week I made observations even in the upper atmosphere on the international wind observation day. During this period in the corps I also observed the habits of Sphecinae and Philanthinae. Every Sunday I observed habits of Nyssoninae and other wasps in sandy areas, forests, and waste lands, and identified plants. Just before my discharge from military service I made charts of wind direction and wind velocity over four seasons, 12 months, and two times a day (morning and afternoon) at every height interval of 100m over Chiba, in order to repay the captain's and my direct meteorological higher officer's kindness (The last allowed me to read German and French entomological books in the observation room and to study wasps during my off time, maybe because my reports on international wind observation days were outstanding.) This was pretty hard work because I had to modify all records. (He bought a Tiger Calculator for me which was rare in those days). For my meteorological work [at Chiba] I received a letter of commendation from the chief of the Imperial Guard Division [1932]. You probably cannot imagine how ostentatious the ceremony was.

After being discharged from the army [circa 1932], I got a post in the second women's high school of Utsunomiya [Tochigi Pref.]. I researched the habits of various wasps there too. I also started studying the taxonomy of Crabroninae because I could not identify many species that I collected in Okunikko with Mr. Tanaka Eiichi. While I was in Utsunomiya, I was recruited for the Japan-China incident, and stayed in Northern China and Mongolia for three years [1937-1939]. (I already had a premonition of the impending defeat of Japan; read my book "One year in Mongolia" [1942: A Naturalist's Year in Inner Mongolia, Osaka].) Incidentally, I met the meteorological higher officer when I was at the war front in Sanlang. Sad to say, he did not come back from the bombing in Lanzhug.

When I came back to Japan [1939], materials were already scarce. I borrowed the book on the Palaearctic Crabroninae by Kohl [1915] from Dr. Yano Sokan, and copied it by hand as everybody did at that time (428 pages of German). I sometimes transcribed it all night long in order not to be late in returning the book, and to maintain my reputation. I also copied all the figures in the book with tracing paper. To repay his favor I gave him food and materials that he liked by evading the control of materials. (I had already known the difficulty of getting rare books. Nowadays many people request book loans because it is easy to copy them. However, I cannot help feeling some resistance when I am asked by only a post card to lend the books which I got with great effort, as for example, sending letters to many European secondhand book stores, sending money and so on.)

I moved to Keijo [= Seoul], Korea [in 1942], after I had studied the taxonomy of a few species of Crabroninae in Utsunomiya. The reasons why I decided to move to Korea were that I could earn a higher salary there because of overseas service, and that many wasps seemed to live in Korean nature, judging from the scenery from the train when I had gone to the war front. In Keijo high school, another person there had one year seniority over me at the higher normal school. Although I was only 34 years old, I had been recommended for a principal candidate of the women's high school in Tochigi Prefecture [Japan] (of course I declined the offer), and received my salary as a higher commissioner. However, the principal of Keijo high school asked me to accept a lower rank because the senior man was not yet a higher commissioner, and the principal could not treat me as a higher commissioner. (Nevertheless, I received a much higher salary than in Utsunomiya). So, I offered him two conditions which were good for my research of wasps. They were that I would not take charge of a class, and that I had one off day besides Sunday. Fortunately he accepted them. I observed and collected wasps on Sunday and Thursday; therefore, my three years in Keijo was equivalent to six years for other people. I collected and studied wasps mainly in the northern part of Korea, but also in every place in the southern part where I could make a one-day trip from Seoul. I always went to the northern part for collecting during every long summer vacation because there were many species of trees, and I could collect many species of wasps, including species in the Ussuri area [now Russia]. I also joined the party investigating Mt. Hakuto, planned by the government house of Korea. It was very impressive.

Just before leaving Utsunomiya [for Korea], my book "A naturalist at a war front" [A Naturalist at the Front, Osaka, 1942] was published, which my teacher, Dr. Fukui Tamao, had recommended that I write. Dr. Komai Taku, the professor of Kyoto University, read the book, and praised me in a long letter. I still remember how happy I was as if it had happened yesterday.

[Later] Dr. Komai recommended me to Dr. Uchida Toru (not Dr. Uchida Toichi) of Hokkaido University [Sapporo], who was looking for a good man to employ; I decided to study in Hokkaido University [1944]. Many students had gone to the war, so they were shorthanded at Hokkaido University. However, my income was greatly reduced. I had lived very well in Keijo, because of

*Cerceris* and *Tiphia*, because they were abundant in the field.

I often went to the Daisetsu mountains during summer vacations. By chance I got acquainted with Mr. Oka on a train. Mr. Oka, who was the master of a large farm in Kiyokawa at the foot of the Daisetsu mountains, kindly helped my long-term collecting tour. I also cannot forget the master of the hut on the top of Mt. Kurodake. He gave me many facilities. Although I met brown bears two times in the mountains, I successfully avoided their attacks. There were many species of Crabroninae and *Gorytes* at the foot and on the path into mountains.

Nine years passed since I came to Sapporo, and three years passed since I got my Ph.D. [1950]. I did not hope to get a post in Hokkaido University, and Dr. Uchida also did not intend to give it to me. I grew older, and was becoming a burden to the laboratory. At that time [1953] the Department of Education of Fukui University, which was a new system university, offered me a post. Although I had wanted to get into an old system university because that would have provided me with many conveniences for my studies, I decided to move to Fukui. The reason I moved to Fukui was that it was impossible for me to get a post in a old system university because Japanese society was based on academic careers. Fukui University offered to make me a professor immediately, and promised to raise my salary by three grades. I wanted a good living for my wife. She had long endured our poor life, and had had a hard time of it.

We sent our belongings from Sapporo to Fukui, and I, my wife and three children carrying rucksacks containing precious things went to Fukui. In the Tokyo station, an awful thing happened to us. Our rucksacks were stolen. My favorite coat which I had used since I was in northern China and Mongolia, and nests of many species of ants which I had kept in Sapporo for five to eight years were in them. The life span for an ant queen was believed to be 15 years for a species kept by Lubbock. Since I planned to publish a new record, I was totally distraught. I reported our loss to the police via the station, but of course they could not find them.

In Fukui, they gave us lodging, and welcomed us. However, they committed two inexcusable outrages. The dean told me that it was impossible to make me a professor immediately, and asked me to tolerate becoming an assistant professor. In a fury, I told him that he was not an educator. He was taken aback, and canceled it. However, the head official said that it was illegal to raise my salary by three grades at once. I asked him why he proposed an illegal thing. He replied that he did not know. Someone said that merchants in Fukui and Eshu were great impostors since long time ago, but I never thought that university men were impostors. In the end, they raised my salary by only two grades, and I lost money for a few years.

The reason they hired me, I found out soon after I came to Fukui, was that although no one had a Ph.D. in the Department of Education, two men in the Department of Engineering had them (There were only two departments in Fukui University); therefore they could not confront the Department of Engineering.

At Fukui University I studied birds mostly, but also wasps. I reported these results in the *Journal of Fukui Seibutu Kenkyukai*, *Seibutu Kenkyu*, *Etizenia*, and so on. Since I had already copied all the important taxonomic literature in the Entomological Institute of the Faculty of Agriculture at Hokkaido University, I could continue studying wasps. I started the journal *Etizenia* in order to obtain new literature [via exchange]. I used almost all my budget to keep it going. The Laboratories of Natural Science in Fukui University also had a journal. I edited it because I had some experience at Hokkaido University, and used it to make my reprints. I sent these two journals to famous foreign universities, institutes, and museums, and exchanged them for their journals. I also exchanged my reprints with specialists of birds and wasps. I studied mainly sensory physiology, behavioral psychology, and social ecology, so I sent my reprints to the scientists of Frisch's school, Bilens, Tinbergen, Heinz, and many ornithologists. Both Heinz and I studied canaries, so we were familiar with each other. (I gave all of the journals that I had received through exchange to the library of Fukui University when I left Fukui, though *Etizenia*, excluding a few issues by Dr. Sasaji, were published at my own expense which I could have used to buy articles of consumption.) However, these journals and reprints were insufficient to continue taxonomic work. It was necessary for me to see Zoological Record, published every year, but I could not afford to buy this expensive journal because I used all my budget to publish *Etizenia*. Of course I could not buy it at my own expense. At this time the coleopterist Dr. Nakane Takehiko helped me. Every year he allowed me to take photographs of parts of journals he had that I needed. I greatly appreciate that favor even now.

A few universities offered me positions while I was in Fukui, but I did not leave Fukui in spite of my initial bad experience there, because nature in this prefecture was excellent. I could find new species everywhere, in mountains, villages, dry river beds, and houses. Most of them were abundant. There were untouched treasure mountains around me. Is there any place where you can study the microdistributions of Chrysididae in Japan now? Of course not. The major reason why I could revise many groups of wasps was that I could collect many species in Fukui. While the words and actions many people in Fukui city, including administrative officials of the University, were unreliable, people in the mountains were very simple and kind. They put me up, helped me to collect wasps and to set bamboo traps, and were pleased to hear my results. Thanks to them I was able to obtain many results in the mountains of Fukui. I always thank them. I do not look important, and I am plainly dressed; therefore I am always treated as a third-class man in hotels. One time I was shown a lumber room under the stairs in a hotel in Kagoshima. However, since I seem to be sociable to countrymen, people of hotels where I had stayed welcomed me at once when I visited again, and sometimes invited me over for a meal. Most people who I met in Amami Oshima Is. and Taiwan were also very kind to me. I made friends also in Jozankei and the Daisetsu mountains. I still have correspondence with them with New Year's cards. Even in Korea where many people had anti-Japanese sentiments, I made friends of priests and employees of the temple in Mt. Soyo where I often went.

I also made many Chinese friends when I went to China as a soldier. One Sunday, I took a walk and dined in the Hokkai (Beihai) Park with a young teach-

coder by him in emergencies. I decoded them two times after that.)

I was very busy in the corps sometimes, but completely free other times. I observed wasps on my free days. On my free nights or in winter time I practiced typing (The wireless operator taught me), and read western literature carefully. I read more than twenty books in this period. (Teachers of literature in every school in which I had a post told me that I did not look like a natural science teacher. That was because I loved the poetry of Heine, Wordsworth, and Robert Burns, sang them using the original words in order to preserve their meters, and also learned Chinese writings and Haiku [a Japanese poem].)

I went to Mongolia voluntarily, but a few soldiers who went with me were sent as punishment. Before I left Peking [Beijing], I left the sheet which showed the way to decode cryptographes in the office room of the corps. When I came back to Peking in order to secure the supply of goods, an office sergeant of the corps told me that Mr. K, a young meteorological sergeant, had stolen it, and presented it to the commander as his own work, and had been promoted to a master sergeant, and that everyone in the corps had known the truth, and made it too hot for him. The office sergeant asked me to see his captain and to ask him to punish the master sergeant. However, I decided not to do it because he had already been punished by his colleagues.

In Keijo [= Seoul] high school, I took charge of a class of general sciences for first degree students. I had to study physics and chemistry again. I usually used discovery methods in experiments. The students who wanted to take examinations in physics and chemistry were much more numerous than those who wanted biology, because this school was an all-boys school. In this school, surprisingly, there were more than ten Leitz microscopes which were very good ones. I used the same microscope in the higher normal school. I made groups of four students to use them. There was probably equipment for making slides. In my class I proposed a competition to the students in which each group tried to make the most slides with the least breakage of coverglasses because they must have both large-minds and minute-minds in every field of life. My plans for my classes and homework for summer vacation were the same as when I was in Utsunomiya. This school had many teachers who were graduates of universities, and it was the best school in Korea. All students were Japanese except for one Korean. One of the teachers, Mr. S who was a teacher of the Japanese language, was an amateur butterfly collector. (He was also an expert of the game "go" and a mountain climber). He presided at many meetings on collecting insects, and even produced a journal; therefore, many students were insect collectors. They came with me on my Sunday collecting trips. Most of them were collectors of butterflies and beetles. Some of them were almost specialists. Since many Korean species were not in Japan, I instinctively collected many beetles and butterflies, which collectors probably covet, when I collected or observed wasps. I donated them to Osaka Museum of Natural History. So, I did not have to teach students in this school about insects, except for the way to observe their habits. (Since this school was closed, the number of graduates has decreased. However, among the graduates are many eminent persons in many fields of life. Some students in my classes also became university professors or biologists.)

I was elected councilor the year I went to Fukui University. It was very troublesome to me, but inevitable because no one in the university laboratory had experience. Drafting university regulations was started, but it was immediately interrupted when the regulation for election of a president was considered. This was because councilors of the Department of Education wanted direct election [by all faculty], but councilors of the Department of Engineering wanted election by councilors only. Fukui University consisted of the Fukui Technical High School and the Fukui Higher Normal School. People of the Technical High School looked down on the Higher Normal School because it had been combined from men's and women's normal schools. People of the normal school also had an inferiority complex. I thought that they were plotting to monopolize the position of president in order to overcome the complex. (The number of teachers of the Department of Education was much more than that of the Engineering Department.) If everyone votes honestly, the direct election is better. However, there are many people who want to hold an executive position everywhere, even in Hokkaido University, and they start a movement informally. So, I claimed that both departments must have equal opportunity in the election, and opposed the people of the Department of Education. The then president, who was a native of Fukui and a retired professor of the Department of Medicine of Tokyo University, supported my opinion. Eventually indirect voting was adopted. I maintained an unbiased policy, and hated to join a clique. Graduates of higher normal schools formed Tokyo and Hiroshima cliques. Each clique had its own territory, and they quarreled. In Utsunomiya I made a social gathering of young people from both cliques, and told them not to quarrel with each other. There was also a Kyoto University clique and a Bunri University clique in Fukui University. I was not part of any clique. Once the Japan teacher's union asked me to join it, but I gave a flat refusal. I believed that teachers are in a sacred profession in communication activities via the contact of personalities. A higher salary is of course better than a lower one for my life and study, but I believed that sit-down strikes and demonstration parades must not be the activities of teachers. I thought that if I joined the union, I must obey the rules. (I am not too dishonest to break them), and I would have degenerated into a mere wage worker. Sometimes members of the union ironically told me that increase in my salary was due to their activities, but I never yielded to them. I told them to leave my salary low. I believe that the reasons for the ruin of Japanese education are the imperialistic policies of politicians in conspiracy with capitalists, and the activity of the Japan teacher's union.

In Fukui University, I was absent from most meetings except for necessary ones, but ususally attended faculties because I was responsible for them. What I claimed at first was establishing the system of chairs. Professors, assistant professors, and assistants were randomly distributed among chairs in the Department of Education at that time. Some chairs had two professors, and some chairs had no professor. Some people made furious efforts to get the post of professor in spite of professors already occupying the chairs. Some professors had written only their graduation theses, and fell behind as-

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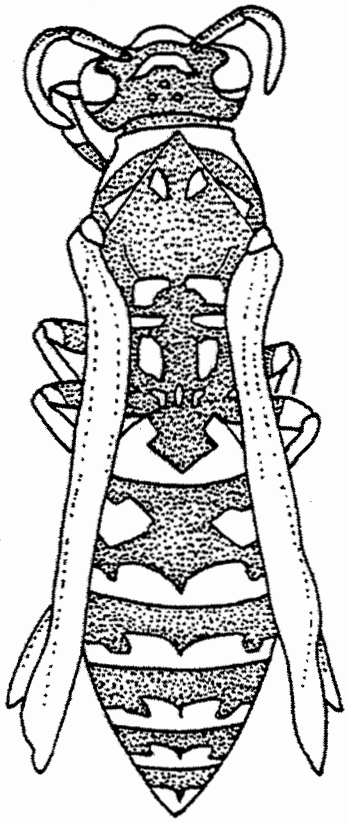
Volume 3 was received from the printer Nov. 16, 1994, and the first copies were distributed on that date. The Oct. 15 mailing date inside the cover is erroneous.

## NEW NEWSLETTER

**Cocuyo** is a new newsletter for the study of the invertebrate fauna of Cuba. Issue #1 containing 10 pages, was issued in November of 1994. **Cocuyo** is edited by J. A. Genaro and J. L. Fontenla, both hymenopterists, and it is a very nicely produced newsletter. Format and contents are similar to **Sphecos**. Apparently the newsletter is distributed through the RARE Center for Tropical Conservation, 1529 Walnut Street, Philadelphia, Pennsylvania 19102.

Russo '94



*Polistes dominulus* (Christ) (Vespidae) from Tunisia, illustration by Monica Russo.

## SCIENTIFIC NOTES

### *Xystromutilla asperiventris* André, 1905 (Mutillidae) reared from sphecid wasps in trap–nests, Manaus, Amazonas, Brazil

by
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Abstract. This is the first report of parasitism by the genus *Xystromutilla*. Males and females of *Xystromutilla asperiventris* André were reared from trap–nests provisioned by four different species of sphecid wasps. Nine parasitized nests were collected from June 1988 to June 1990 in isolated forest fragments of Manaus, Brazil.

Solitary wasps and bees nesting in preexisting holes were collected by means of trap–nests from June 1988 to June 1990 in an area of Central Amazonas situated approximately 70km North of Manaus (2°30'S and 60°W) (Morato, 1993). The area has a vegetation typical of tropical rain forests ("terra firme" forests), with a canopy height averaging 30–37m. The understory is fairly open and possesses a great number of stemless palms. The 30 year annual precipitation average is 2186mm, with a dry season between July and September when the monthly precipitation is less than 100mm.

Trap–nests were made out of wood pieces each measuring 25 x 35 x 120 mm, and a having drilled hole of one of three different diameters: 4.8, 9.5 and 12.7mm, with an 8cm depth. These wood pieces were tied in blocks of 9 units, having the three hole diameters arranged in a random fashion, and they were placed in close contact with the stems of trees at 1.5, 8 and 15m heights above the ground. The trees were part of isolated forest fragments, with nearby continuous, undisturbed forests and small gaps. A total of 1692 trap–nests were placed in the field and monitored on a 15 day basis. Those trap–nests found occupied were carried to the laboratory to await for the emergence of adults and parasitoids, and immediately substituted in the field by empty trap–nests.

Seventeen adults (12 males and 5 females) of a species of parasitoid wasp emerged from 9 trap–nests and were identified as *Xystromutilla asperiventris* André), 1905. After two years of field collections, from a total of 2149 trap–nests found provisioned by wasps and bees and brought to the laboratory, only 9 (0.4%) were parasitized by this mutillid. From a total of 489 parasitized cells recorded in that period, 3.5% were parasitized by *X. asperiventris*. Seven of the sphecid nests were found parasitized between August 1988 and January 1989; the parasitism of the others occurred in November 1989.

The hosts of the reared *X. asperiventris* were four different species of sphecid wasps: *Trypoxylon (Trypoxylon) nitidum* (provisioned four nests), *T. (Trypargilum) lactitarse* (three nests), *T. (Trypoxylon)* aff. *ungicorne* (one nest), and *Podium rufipes* (one nest). All the *Trypoxylon* cells were constructed of mud. The nest of *Podium rufipes* had a single cell closed with a plug made with a silky material plus an outer terminal plug of a resinous material. Adults of *X. asperiventris* emerged through a hole they made in the host cocóon, dorsally and anterior to the normal exit point of the host.

One of the parasitized sphecid nests was collected in a deforested area; another, in a gap situated in the interior of a continuous forest. The rest were collected in the periphery of continuous forests and isolated forest fragments.

Five parasitized sphecid nests were provisioned in trap–nests with a hole diameter of 4.8mm; three in 9.5 and one in 12.7mm. Five of the nests were from trap–nests positioned at 15m height, and four at 1.5m.

The results indicate that the parasitism rate by this species of mutillid wasp is rather low. It is very interesting the highly skewed sex ratio found of the reared adults of *X. asperiventris*, 2.4: 1, males:females. No measurements were taken from the pupae and adults of the hosts nor from the adult mutillids reared. These measurements might have been useful to try to explain the higher investment in males by the female mutillids that parasitized the sphecid nests. The present report is the first record of parasitism for the genus *Xystromutilla*. Cambra and Quintero (1992) observed an attempt of parasitism by a female of *Xystromutilla turrialba* Casal, 1969, at Madden Dam, Republic of Panama in June 1989. The female was found "half–way through an opening made with her mandibles in the middle of a nest of

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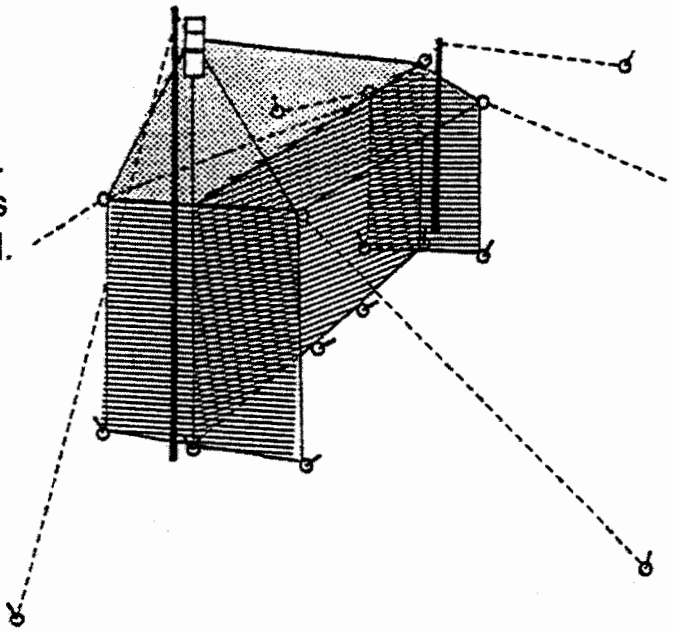

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ture reserves requires permits (currently, $25 per person per park), and export permits are also mandatory for any plant or animal material. We obtained ours via the Xerces Society, which has its headquarter in Portland, Oregon, has a cooperative nature protection program with Madagascar, and a local office in Antananarivo (the Oregon phone number is (503) 222-2788). They charged $40 per person for their services, and it was worth every penny of it. Their local administrator, Mr. Cesaire Ramilison, efficiently dealt with the Eaux et Forets officials and provided all the necessary documents. He met us at the airport (with a car) and helped with customs during our departure. He deserves our gratitude.

Roads are quite a problem. Some are good, e.g., the Antananarivo-Tamatave road, or the Antananarivo-Fianarantsoa, or a good portion of the Antananarivo-Mahajanga road. Others were disastrous. Particularly infamous is the Tulear-Fort Dauphin road. The distance is about 600km, and it normally takes 2 days from one end to the other. The road is used by heavy trucks, buses, and other vehicles, and consists mainly of potholes. When we arrived to Ampanihy, I was thinking of Hemingway's "For whom the bells toll" and the scene in which fascists are being killed with flails. I felt like I had been flailed myself.

After Alain's and Sandro's departures, Marius and I heroically decided to go back to Tulear. The reason was a flowering *Zizyphus* tree there, on which we previously collected *Tachysphex flavofimbriatus*, including the undescribed female. The way back turned out to be even more difficult. First, at Belohy we mistakenly continued straight on after Belohy rather than turning right into a small, unmarked street. Two hours later, Realen remarked that we might be on a wrong road. We returned to Belohy, but it was already night and we had a hard time finding somebody to give us directions. Finally we were on the right road to Ampanihy. An hour later, our car stalled out in the middle of a big pothole full of water, and we discovered that the battery was dead. It was pitch black, no traffic, and we prepared to spend the night in the car, which was leaning strongly to the left (sitting was not quite comfortable). An hour later, fortunately, a car came from the opposite direction and pulled us out. Theodore and the other driver then removed our dead battery, replaced it with their battery, started the engine, removed their battery, placed it back into their car, then put our dead battery back into place (obviously a diesel engine requires a battery for starting but not for running). We made it to Ampanihy about midnight. The next morning we borrowed a battery from a local store (not for free, either), put it in our car, started the engine, replaced the batteries, and went on. Because Theodore was completely exhausted, and suffering from bad dysentery, Marius volunteered to drive. Five kilometers further, the engine died again. Realen walked back to Ampanihy and brought helpers from the same local store. They offered to sell us a new battery (in fact a badly used one) at an exorbitant price, or to repair our old one. We chose the second option. The repair was done, but we were some 5 hours late. The night caught us a long way from Tulear. Twice we took wrong turns into the bush, since the road branched in a maze of secondary roads, and seeing in the dark with only one headlamp working was not easy. Realen helped us both times. At around 11:30 PM, our left front wheel fell into a deep hole (a collapsed water drainage pipe) up to the axle. Marius and I looked at it rather helplessly, but Realen acted again. Using the jack and rocks, he gradually raised the wheel to the road level and finally we backed up. We reached the paved road at the long last and came to Tulear at 5 AM. After some 18 hours at the wheel, Marius was driving like a zombie (I did not dare to replace him), but good luck was with us. We took a shower, slept a few hours, and went to see the tree. Alas, no *flavofimbriatus*. However, back in San Francisco I found a series of another *Tachysphex*, one with a flattened thorax, that was collected that day. This beast may be undescribed and made coming back to Tulear worthwhile.

Our collecting areas were all within driving distance of hotels, and we did not need to camp. One advantage that compensated many hardships was the fabulous French cuisine. I never ate so well as in Madagascar. Never before had I tried the French style foi de canard (duck liver) that costs a fortune in Europe. Other outstanding dishes included soupe a l'oignion, canard a l'orange (duck in orange sauce), avocat a crevettes (avocado filled with shrimp), le marcassin (baby wild bore), ecrevisses (crayfish), poisson a l'oseille (fish in duck sauce), and a great selection of seafood. Wines were also excellent, of which Betsileo gris was perhaps the best (remember the endemic *Larra betsilea* de Saussure?).

The following localities visited are worth mentioning:

1. beaches north of Tamatave, on the east coast, with many flowers and many Hymenoptera. I found my first *Tachysphex* there.
2. Mandraka. A primeval mountain forest area on the Antananarivo-Tamatave road, a small remainder of the once impenetrable forests that extended from the coast to the capital and efficiently stopped all invaders.
3. A forest 33km south of Ambositra (on the Antananarivo-Fianarantsoa road), on rolling hills and literally swarming with Pompilidae, *Dolichurus*, and various Ichneumonidae. It will probably not last long because of human pressure, and I wish it could attract more naturalists.
4. Ranomafana National Park (northeast of Fianarantsoa) is one of the best known in Madagascar. Although established only a few years ago, it is well protected and includes a wealth of plants and animals. It is a montane forest, hence no good for my project.
5. Ranomafana. A sandy area just behind the Hotel Thermal, on the left river bank, is excellent for a wasp collector. Many species collected by Andre Seyrig and reported in Arnold's 1945 book on the Madagascan Sphecidae must have been collected there.
6. The mainly sandy Ihosy-Ranohira road, bordered by flowers, is also recommended, especially the area 40km W of Ihosy.
7. Isalo National Park (between Fianarantsoa and Tulear). We tried several places, but a dry river bed at 22°36'S 45°09'E was especially good. We collected both on flowering bushes and on the ground. We also visited La Piscine Naturelle, a natural pool highly recommended by tourist guides. Entomologically, it was a disaster, because the area is surrounded by an artificial grassland that is burned every year.
8. A forest 38km E of Sakaraha, about 1 km to the south from the road. The forest itself was rather sterile, but the edge was excellent for *Tachysphex* and other wasps.
9. Tulear area (southwestern Madagascar). We found good collecting sites a few kilometers north of the town, north

walking off the wall to explore the surrounding area. There were lots of insects in general, including an abundance of sphecids. *Ammophila* was taken there.

Hong Kong was the best area for collecting. I stayed with Mike Crosland, Biology, Chinese University of Hong Kong, N. T. Hong Kong. Mike is a fabulous host, is knowledgeable about Hymenoptera (esp. ants and bees) and termites, and welcomes visitors. Although my short visit there was primarily concerned with ants (*Harpegnathos*, *Diacamma*, and *Pachycondyla*), I did observe some *Vespa basilaris*. The intriguing thing about these wasps was that they routinely foraged on our porch located 8 stories (high ones, I might add) above ground and double the canopy height.

## An Aculeate Wasp Collecting Trip Through the Black River Valley of Upstate New York

*by*

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The geographic distributions of many aculeate wasp species in upstate New York remain poorly known despite the fact that the College of Agriculture at Cornell University has housed a large Entomology Department for nearly a century and a half. Only three areas of upstate New York have been rather thoroughly collected for aculeate wasps: (1) the environs of Ithaca where Cornell University is located; (2) the greater Syracuse area in the vicinity of the S.U.N.Y. College of E.S. & F.; and, (3) the Pinebush of Albany County in connection with extensive malaise trapping being carried on by Tim McCabe, New York State Museum. The Black River Valley of northwestern upstate New York is one area whose aculeate wasp fauna remains virtually unknown. To my knowledge the only wasp specimens from this region in existence are those collected by R.C. Miller in the early 1970s from Penny Settlement Road, Lewis County between Port Leyden and Lyonsdale, and housed in the S.U.N.Y. College of E.S. & F. insect museum. Miller's collections focused on crabronine wasps. The purpose of the present paper is to investigate and report on the extent of this regional aculeate wasp fauna and complement Miller's collections.

The Black River Valley is a region that runs for nearly 150km from the foothills of the southwestern Adirondack Mountains in Herkimer County to Sackets Harbor in Lake Ontario in Jefferson County. The valley and bordering hillsides are extensively sandy from just east of Watertown in the north to below Forestport to the south. They represent the ex–shoreline and bottom of a Late–Pleistocene glacial lake. This sandy band, interspersed with peripheral patches of glacial till and bedrock outcropping, ranges in width from 4km just north of Naumberg in Lewis County to nearly 20km at the latitude of Lowville in the same county. A sizeable sand plain north of the Black River remains in Jefferson County from deltaic and near deltaic littoral deposits of an ancestral Black River and perhaps ice marginal drainage from the nearby Adirondacks deposited in glacial Lake Iroquois, the predecessor of present–day Lake Ontario (Muller pers. comm.). This lacustrine delta exceeds 15 x 25 km in width and length, respectively, and is now occupied by the Fort Drum Military Reservation. Except for this area, which is partly open and contains abundant white pine-grassland-sweet fern savannas, the valley is mostly heavily forested and shaded. The natural vegetation of the region probably consisted of a dense sugar maple-American beech-yellow poplar forest containing white pine on the uplands with hemlock growing in the ravines. Open areas where soil-dwelling aculeate wasps could have nested would have been scarce in the region except where fire, erosion, windthrow and tree disease had produced barren patches of land. Today, aside from an easily accessible area along Route 3 running adjacent to Fort Drum between the villages of Black River and Natural Bridge (Jefferson County), the only moderately open areas of sandy soil lie alongside Number Four Road between Watson and Crystal Dale (Lewis County), along Penny Settlement and Fowlerville Roads between Lyonsdale and Port Leyden (Lewis County) and along Millers Woods Road from Hawkinsville to Forestport (Herkimer County). Consequently, I made my collections and/or observations in these four areas.

The collections and/or observations were made on July 3 and 4, 1994. Weather conditions were ideal during these two days: clear blue skies, bright sunshine and temperatures approximating 32°C (90°F) at mid-day and as high as 23°C (74°F) as early as 0730 h. Early July was selected as the period of study because many of the late spring sphecids such as *Crabro monticola* (Packard) and first generations of *Crabro advena* Smith, *Tachysphex terminatus* (Smith) and *Oxybelus bipunctatus* Olivier are finishing nesting and early to mid–summer species such as *Lyroda subita* (Say), *Oxybelus subulatus* Robertson and *Anacrabro ocellatus* Packard are just beginning to nest. Thus, there is an overlap in late spring and mid-summer-nesting species.

A total of 54 species of Tiphiidae, Mutillidae, Pompilidae and Sphecidae were collected and/or observed during this two day-long study period. This number included common northeastern species belonging to the genera *Tiphia* and *Paratiphia* (Tiphiidae), *Timulla* (Mutillidae), *Priocnemis*, *Calicurgus*, *Evagetes*, *Episyron*, *Anoplius*, *Ammosphex*, *Arachnospila* and *Aporinellus* (Pompilidae) and *Chalybion*, *Sceliphron*, *Podalonia*, *Ammophila*, *Mimesa*, *Tachysphex*, *Lyroda*, *Plenoculus*, *Miscophus*, *Trypargilum*, *Oxybelus*, *Anacrabro*, *Lindenius*, *Crossocerus*, *Crabro*, *Alysson*, *Nysson*, *Ochleroptera*, *Gorytes*, *Microbembex*, *Bembix*, *Philanthus* and *Cerceris* (Sphecidae). Noteworthy and/or unusual observations included:

(1) *Evagetes crassicornis* (Shuckard) females slowly searching in open areas and antennating the ground surface where *Anoplius marginatus* (Say) and *A. subcylindricus* (Banks) were nesting (see Evans and Yoshimoto 1962, Lane *et al.* 1988);

(2) *Anoplius relativus* (Fox) females investigating burrows and turrets of *Geolycosa* (Lycosidae) spiders while being constantly pursued and disrupted in their activities by conspecific males (see Kurczewski and Kurczewski 1973);

(3) *Anoplius ithaca* (Banks) females searching for *Pardosa* (Lycosidae) spiders on and under pebbles and stones in small, dry stream beds (see Evans and Yoshimoto 1962, Kurczewski 1962);

(4) *Ammosphex michiganensis* (Dreisbach) and *Aporinellus completus* Banks provisioning with *Xysticus* (Thomisidae) and *Phidippus* (Salticidae) spiders, respectively (see Evans and Yoshimoto

wanted to reach Douglas, Arizona via this road. A southwest fork in the road leads through the Guadalupe Mountains and past Slaughter Ranch (sometimes known San Bernardino Ranch), ultimately bringing you to Douglas. I asked a border patrol officer that we met south of Animas for directions (I was uncertain if the road fork would be well marked). He looked at our Ford Probe and told me that he would not advise trying to drive it to Douglas via that road on account of high road centers, many stream bed crossings, etc. His remarks simply bolstered my confidence that I could make it (over the years various people have given me similar warnings, most of which proved unwarranted). Nancy seemed unperturbed; she recalled my driving prowess in a Ford Escort on the dirt road from Darwin to Darwin Falls in Inyo Co., California last year. We found the turnoff, but it was many miles farther south than the border patrol officer told us it was. As we entered the mountains the vegetation got denser and lusher, but it was very dry. We tried collecting but nothing much was flying. In a good year, however, I imagine that collecting here would be terrific. We will return someday. The road did cross the dry stream bed numerous times, but careful driving resulted in no problems, and we finally reached the pass and looked down into Arizona. On the way down we passed side roads to Sycamore and Guadalupe Canyons, both of which are worth exploring and collecting because of their closeness to Mexico. When we reached the Slaughter Ranch turnoff, we drove in and spent a few hours there. I was last here over 30 years ago with Lionel Stange and much has changed. The ranch has been restored and there are picnic tables by the lake under the shade of cottonwood trees. The exit channel from the lake in which I collected aquatic bugs many years ago, was bone dry, and it was hard to believe that it once was full of water, water cress, and belostomatids!

Nancy's father, who passed away early this year, had never been west of the Mississippi River or traveled to Mexico. She had saved some of his ashes in a tiny urn, and we carried them with us with the idea of burying them in Mexico. Slaughter Ranch provided the perfect opportunity to carry out this plan because the border fence is but a short hike from the ranch. Part of Nancy's dad now resides, forever, in Mexico just across the fence from Slaughter Ranch.

That night we arrived in Bisbee, Arizona, an old mining town. The famous Lavender Pit which produced huge amounts of copper, has been inactive for 20 years. However, Bisbee is recovering from this loss of income and is being discovered by more and more people seeking a quiet retirement area. Bisbee has about 7,000 inhabitants representing a broad mixture of people of all ages: artistic types, hippies, naturalists, retirees, and others. The town seems to have been "discovered" and is starting to grow, but right now it has considerable small town charm. Nancy and I liked the area and unexpectedly found our retirement dreamhouse outside of Bisbee. After two days of deliberating the pros and cons of the wisdom of buying a house two years before my retirement, we decided to make the owner an offer. The owner accepted it and we now own four acres of high desert (5500') with a beautiful home that overlooks Mexico to the south, and is backed up by the Mule Mountains to the north: "Menke's Tarantula Ranch." We will be able to collect *Ammophila* right in our yard! Maybe we will call it Menke's *Ammophila* Research Station. During our two day deliberations over the house, we camped in Madera Canyon in the Santa Rita Moutains. Nancy bagged a specimen of *A. strenua,* but it was very dry and collecting was slow.

After finalizing matters relating to the house, we left Bisbee, heading north to Benson/Pomerene. We then followed the dirt road that leads up the San Pedro River Valley, eventually reaching Globe. This was a scenic drive, but we did not attempt collecting. The next day we headed up highway 60 to Show Low and Snowflake. We collected west of the latter town and caught *Ammophila mescalero, varipes,* and *wrightii.* We then reached Holbrook and continued north into Navajo land finally reaching Chinle where we camped in Canyon de Chelly Nat. Monument. The next day we hiked down into the canyon and visited the White House ruin. Then we drove northwest to Kayenta and Monument Valley, finally stopping at Muley Point Overlook in Utah. Muley Point, at 6000 feet, offers one of the finest views I have seen anywhere, and Nancy and I camped there. To the south you see the various buttes of Monument Valley and directly beneath the cliffs of Muley Point is the San Juan River and its famous goosenecks. Off to the southwest is brooding Navajo Mountain. The sunset from Muley Point was fantastic. As darkness fell, it began to rain so we put up a tent. The rain stopped and a heck of a wind came up that practically blew us away. What a wild night!

The next day we headed north on Utah 261 to 95, eventually reaching Hanksville, Utah. Hanksville has grown since Frank Parker and I last visited the place in 1986. It now has several motels and eateries. Nancy and I drove north on road 24 into the San Rafael Desert and parked the car opposite Gilsen Butte. We hiked over to the Butte collecting along the way. We took more specimens of *Ammophila moenkopi* and other sphecids, as well as a bunch of ant lions for my friend Lionel Stange. This area is always fun collecting and when Nancy and I move to Bisbee, we will doubtless come here every so often. The nearby Henry Mountains are home to the only truly wild population of American Buffalo. We would have liked to experience them, but this trip did not contain enough days. The next day we drove west from Hanksville to Capitol Reef Nat. Park, and then south from Torrey to Boulder, crossing scenic Boulder Mt. enroute. We headed toward Calf Creek Falls State Park, parked the car and began the several mile hike to the very pretty falls. Along the way we captured 5 species of *Ammophila*: *aberti, breviceps, cleopatra, moenkopi* and *unita.* A thunderstorm hit us as we reached the falls but we waited it out under a protective ledge. When the rain stopped we began the return hike and eventually retraced our drive back to Hanksville.

The next day we headed north on road 24 to interstate 70, then east on 70 to 163 and Arches National Park. Nancy and I hiked to Delicate Arch and spent quite a bit of time enjoying the view. We then hit the road south toward Monticello, stopping to take in the vista of Canyonlands Nat. Park from Needles Overlook. We collected a fair amount of wasps on the Overlook road, and at Wind Whistle Campground, Nancy caught specimens of *Ammophila juncea.* We also drove down route 211 that takes you to Canyonlands Nat. Park, stopping at Newspaper Rock, so named because it is covered with hundreds of very well preserved petroglyphs, some of which are very old

findings in a report of collection trips in **Sphecos** 25.

To give a better idea of the distribution reflected by the collection, I have listed the Brazilian states using the following abbreviations: Acre (AC), Alagoas (AL), Amapá (AP), Amazonas (AM), Bahia (BA), Ceará (CE), Distrito Federal (DF), Espirito Santo (ES), Goiás (GO), Mato Grosso (MT), Mato Grosso do Sul (MS), Maranhão (MA), Minais Gerais (MG), Paraíba (PB), Pará (PA), Paraná (PR), Pernambuco (PE), Piauí (PI), Rio Grande do Norte (RN), Rio Grande do Sul (RS), Rio de Janeiro (RJ), Roraima (RR), Rondonia (RO), Santa Catarina (SC), São Paulo (SP) and Tocantins (TO). Other South Amencan countries are abbreviated as follows: Argentina (Arg), Paraguay (Par), Chile (Chi), Peru (Per), Bolivia (Bol), Venezuela (Ven), Colombia (Col), Equador (Equ), Guyana (Gui), Surinam (Sur).

**Ampulicinae**

Ampulicini
*Ampulex*, AM, PA, SP, India

Dolichurini
*Dolichurus*, MG. SP.
*Paradolichurus*, BA, MA,MT.

**Sphecinae**

Sceliphrini
*Chalybion*, USA.
*Chlorion*, MG, RS, SP, Arg, USA, India.
*Dynatus*, BA PA.
*Penepodium*, AM, BA, DF, ES, GO, MG, PA, PR, RJ, RS, SC, SP.
*Podium*, AM, BA ES, GO MG, MS, MT, PR, RJ.
*Sceliphron*, AC, BA, CE, DF, ES, GO, MG, PA, PE, PI, PR, RJ, RN, RS, SC, SP, Arg, Par, Chi, USA, Syria, South Africa, Congo, Europe.
*Stangeella*, DF, Arg.
*Trigonopsis*, AP, ES, MT, PA.

Sphecini
*Isodontia*, AM, BA, GO, RJ, SC, SP, Arg, USA, Mex..
*Prionyx*, AP, BA, ES, PA, PI, Arg, Per, Chi, USA.
*Sphex*, AM, BA, CE, ES, GO, MA, MG, MT, PA, RJ, RR, RS, SC, SP, Arg, Par, Per, Chi, Gui, USA, Hungry, Spain.

Ammophilini
*Ammophila*, BA, ES, GO, MG, MS, MT, PA, RS, SC, SP, Arg, Chi, Ven.
*Eremnophila*, AM, BA, CE, ES, GO, MG, MT, PA, RJ, RO, RS, SC, SP, Ven, USA.
*Podalonia*, Mex., Sicily, Spain.

**Pemphredoninae**

Psenini
*Pluto*, AM, AP, BA, CE, ES, MG, MT, RR, SP, Arg, Par.
*Pseneo*, ES, GO, PR, RJ, SP.
*Psenulus*, AP.

Pemphredonini
*Diodontus*, USA.
*Mcrostigmus*, MG SC, SP.
*Passaloecus*, SP.
*Pemphredon*, Europe.
*Spilomena*, DF, MG, MT SP.
*Stigmus*, AP, BA, DF, MG, MT, SP.

**Astatinae**

Astatini
*Astata*, CE, ES, MG, MT, PI, PR, RJ, SC, SP, Bol, Per, Equ, Spain.

**Larrinae**

Larrini
*Larra*, AC, DF, ES, MG, PA, PI, PR, RJ, RS, SP.
*Liris*, AP, BA, CE, ES, GO, MG, MS, MT, PA, PI, PR, RR, RS, SC, SP, Arg, Bol, Ven, Sur, Spain.
*Parapiagetia*, Arg, Par.
*Tachysphex*, AM, BA, DF, ES, GO, MG, MS, MT, PA, PI, RR, SP, Arg, Spain.
*Tachytes*, AL, AM, AP, BA, DF, ES, GO, MG, MS, MT, PI, RJ, RR, RS, SP, Arg, Par, Ven, Sur, Europe.

Palarini
*Palarus*, Mauritania, Egypt.

Miscophini
*Lyroda*, BA, MG, PA, PT, Par, USA.
*Miscophus*, AP.
*Nitela*, AM, AP, BA, MT, RO, SP.
*Solierella*, BA, ES, GO, MG, PI, RR, Sur.

Trypoxylini
*Aulacophilus*, BA, MG, PI.
*Pison*, AC, AM, DF, GO, MG, MT, PA, PI, RJ, SC, SP, Chi, Mex.
*Pisonopsis*, USA.
*Pisoxylon*, AM, SC.
*Trypoxylon*, AC, AL, AM, AP, BA, CE, ES, GO, MA, MG, MS, MT, PA, PE, PI, PR, RJ, RO, RR, RS, SC, SP, Arg, Par, Col, Ven, Sur, USA, Costa Rica, Guatemala, Mex., Sri Lanka, Japan, India, Philippines, Formosa, Europe.

Scapheutini
*Bohartella*, SP.
*Scapheutes*, AP, MG, SP.

Bothynostethini
*Bothynostethus*, BA, ES, GO, MT, PA, PI, SP.

**Crabroninae**

Oxybelini
*Oxybelus*, AM, BA, ES, GO, MG, MT, PA, PI, RJ, SP, Par, Chi, Spain.

Crabronini
*Anacrabro*, MG, MT, PA, PI, SP.
*Crabro*, Europe.
*Ectemnius*, BA, ES, MG, MT, RJ, RO, RS, SC, SP, USA, Europe.
*Enoplolindenius*, AM, AP, BA, ES, MG. MT, PI, SP.
*Entomocrabro*, MG, SP.
*Foxita*, AP, PA, SP.
*Lestica*, SP, Europe.
*Pae*, AP, SP.
*Podagritus*, SP, Chi.
*Quexua*, AP, Per.
*Rhopalum*, SP, Chi, Ven.
*Taruma*, RJ.

**Nyssoninae**

Mellinini
*Mellinus*, Europe.

Heliocausini
*Tiguipa*, MT, PI.

Alyssonini
*Alysson*, USA, Europe.

Nyssonini
*Antomartinezius*, BA, DF.
*Cresson*, SP, Chi.
*Epinysson*, MG, PI, RJ, SP.
*Foxia*, PA, SP.
*Idionysson*, SP.
*Metanysson*, PI.
*Nysson*, Europe.
*Perisson*, Arg.
*Zanysson*, DF, GO, MT, SP.

Gorytini
*Argogorytes*, MG, SP.

*rufomandibulata*, 1986
*taiwana, Hylomesa*, 1986
*taiwanica, Methocha*, 1986
*takasago, Tiphia*, 1986
*vallicola, Tiphia*, 1986
*yanoi, Tiphia*, 1986

POMPILIDAE

*alticola, Minagenia*, 1989
*ami, Pompilus*, 1989
*bunun, Pompilus*, 1989
*changi ,Hemipepsis*, 1989
*checheng, Anoplius*, 1989
*daedalus, Atopopompilus*, 1989
*fenchihuensis, Dipogon*, 1989
*formosana, Taiwania*, 1989
*formosanus, Anoplius*, 1989
*formosanus, Leptodialepis*, 1989
*formosanus, Minoctocyphus*, 1989
*fuliginosus, Anoplius*, 1989
*granulosa, Minagenia*, 1989
*hengchunensis, Anoplius*, 1989
*hombukeanus, Auplopus*, 1989
*hoorai, Auplopus*, 1989
*ilanensis, Ferreola*, 1989
*kuanghuanus, Auplopus*, 1989
*kuarensis, Auplopus*, 1989
*latifrons, Anoplius*, 1989
*latimarginatus, Episyron*, 1989
*longicornis, Anoplius*, 1989
*meridianus, Anoplius*, 1989
*murotai, Auplopus*, 1989
*nambiu, Auplopus*, 1989
*niger, Lissocnemis*, 1989
*nigripennis, Morochares*, 1989
*pempuchianus, Dipogon*, 1989
*pempuchiensis, Aporinellus*, 1989
*pempuchiensis, Auplopus*, 1989
*pempuchiensis, Minagenia*, 1989
*pygmaeus, Ceropales*, 1989
*quadridentata, Meragenia*, 1988
*rufiventris, Phanagenia*, 1989
*rufotibialis, Episyron*, 1989
*rufotibialis, Taiwania*, 1989
*surusumi, Anoplius*, 1989
*taiwana, Ferreola*, 1989
*taiwana, Minagenia*, 1989
*taiwana, Phanagenia*, 1989
*taiwana, Taiwagenia*, 1989
*taiwaneanus, Malloscelis*, 1989
*taiwanensis, Hemipepsis*, 1989
*taiwanianus, Ceropales*, 1989
*taiwanus, Aporinelliellus*, 1989
*taiwanus, Clistoderes*, 1989
*taiwanus, Evagetes*, 1989
*taiwanus, Homonotus*, 1990
*taiwanus, Pompilus*, 1989
*taiwanus, Temlepis*, 1989
*takasago, Phanagenia*, 1989
*tsou, Pompilus*, 1989
*tsukengensis, Anoplius*, 1989

SPHECIDAE

*abnormis, Odontocrabro*, 1971
*aborlana, Cerceris*, 1992
*albopilosa, Liris*, 1967
*alisana, Ampulex*,1967
*alishanus, Ectemnius*, 1968
*alishanus, Psen*, 1967
*alishanus*, ssp. of *Stigmus shirozui*, 1971
*alticola, Crossocerus*, 1968
*amamiensis, Dolichurus*, 1964 Tsuneki & Iida
*amatorium, Trypoxylon*, 1980
*ami*, ssp. of *Stigmus convergens*, 1971
*angustipetiolatum, Rhopalum*, 1971
*antennatus, Polemistus*,1992
*apakaensis, Tachysphex*,1971
*apakensis*, ssp. of *Cerceris arenaria*, 1961
*apakensis*, ssp. of *Sphex lividocinctus*, 1971
*apiciornatus, Dolichurus*, 1977
*apoensis, Nitela*, 1992
*aponis, Carinostigmus*, 1992
*aposanus, Dolichurus*, 1992
*attenuatus*, ssp. of *Psen seminitidus*, 1977
*baguionis, Dolichurus*, 1992
*baguionis*, ssp. of *Trypoxylon fletcheri*, 1980
*bakeri, Trypoxylon*, 1978
*bakerianum, Trypoxylon*, 1979
*bambosicola*, ssp. of *Crossocerus fukuiensus*, 1971
*banahao, Trypoxylon*, 1980
*banoense, Trypoxylon*, 1980
*basiflavum, Trypoxylon*, 1979
*basilanense, Trypoxylon*, 1980
*basilanum, Trypoxylon*, 1980
*beidzmiao, Tachysphex*, 1971
*benten, Trypoxylon*, 1979
*bidentatus, Polemistus*, 1992
*binghami*, ssp. of *Liris deplanata*, 1967
*bnun, Crossocerus*,1971
*bnun, Psen*, 1971
*borneana, Liris*, 1974
*breve*, ssp. of *Trypoxylon flavipes*, 1980
*capillatum, Trypoxylon*, 1979
*cebuensis, Polemistus*, 1992
*chahariana*, ssp. of *Ammophila gobiensis*, 1971
*changi, Cerceris*, 1972
*changi*, ssp. of *Ectemnius melanotarsis*, 1971
*changi, Rhopalum*, 1968
*changi, Tachysphex*, 1967
*chihpense, Trypoxylon*, 1971
*chingi, Trypoxylon*, 1971
*chongar*, ssp. of *Trypoxylon frigidum*, 1956
*cidicum, Trypoxylon*, 1980
*clypealis, Dolichurus*, 1992
*clypeopunctata, Liris*, 1974
*compluvium, Trypoxylon*, 1980
*coreensis, Cerceris*, 1961
*cornigena, Cerceris*, 1992
*crassicollis, Cerceris*, 1968
*curo, Cerceris*, 1992
*curvum, Trypoxylon*, 1980
*davaonis*, ssp. of *Dolichurus palawanensis*, 1992
*denticollis, Ampulex*, 1967 (= *bidenticollis* nom. nov., Tsuneki, 1976)
*difficilis, Liris*, 1983
*domicola, Crossocerus*, 1971
*erraticum, Rhopalum*, 1968
*falcifera, Cerceris*, 1961
*fenchihuensis, Larra*, 1967
*fenchihuensis, Trypoxylon*, 1967
*flagellatum, Trypoxylon*, 1980
*flavitibialis*, ssp. of *Oxybelus latidens*, 1971
*formosana, Ammophila*, 1967 (= *formosensis* nom. nov., Tsuneki, 1971)
*formosana, Leclercqia*, 1968
*formosana, Liris*, 1973
*formosana, Taialia*, 1971
*formosanus, Alysson*, 1968
*formosanus, Dasyproctus*, 1968
*formosanus, Tachysphex*, 1971
*formosensis*, ssp. of *Psen koreanus*, 1965
*formosus*, ssp. of *Oxybelus nipponicus*, 1968
*fruiticicola, Trypoxylon*, 1981
*fukuitor, Polemistus*, 1992
*fuliginosus*, Argogorytes, 1968
*fuscatus, Liris*, 1971
*gampahae, Trypoxylon*, 1981
*gegan, Cerceris*, 1961
*giganteum, Trypoxylon*, 1980
*hakusanus, Psen*, 1959
*hengchunensis, Tachytes*, 1967
*hokkanzana, Cerceris*, 1961
*hombceanum, Rhopalum*, 1973
*idzekii, Tachysphex*, 1971
*inondensis, Crossocerus*, 1983
*insulicola, Cerceris*, 1968
*insulicola*, ssp. of *Ectemnius arreptus*, 1971
*intermedius, Pemphredon*, 1951
*kalensis*, ssp. of *Cerceris varia*, 1972
*kamateensis, Crossocerus*, 1971
*kandyianum, Trypoxylon*, 1979
*kansitakuanus*, ssp. of *Crossocerus flavopictus*, 1971
*kansitakuanus, Stigmus*, 1971
*kanistakum, Trypoxylon*, 1971
*kawasei*, ssp. of *Cerceris formosicola*, 1963

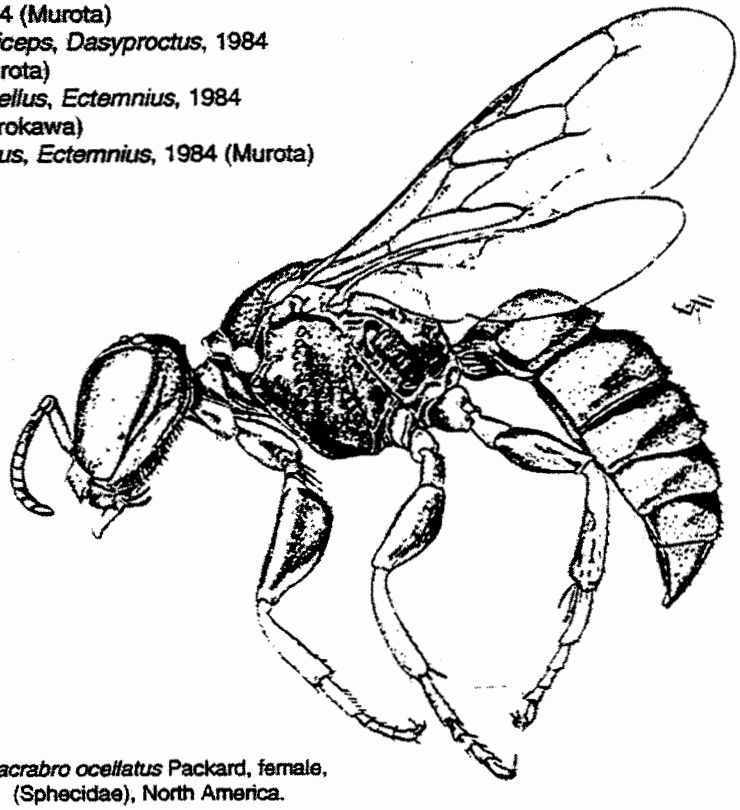
*baguionis*, *Liris*, 1983 (Murota)
*bukidnon*, *Ectemnius*, 1984 (Kurokawa)
*bukidnon*, *Rhopalum*, 1984 (Murota)
*cavicola*, *Liris*, 1983 (Murota)
*cornicum*, *Crorhopalum*, 1984 (Murota)
*davaonis*, *Liris*, 1983 (Sabi)
*djurodzin*, *Ectemnius*, 1984 (Murota)
*iliganensis*, *Ectemnius*, 1984 (Murota)
*laguna*, *Lyroda*, 1983 (Murota)
*lagunensis*, *Tachysphex*, 1983 (Tano)
*leytense*, *Isorhopalum*, 1984 (Tano)
*luzonicus*, ssp. of *Tachysphex changi*, 1983 (Murota)
*makahambus*, *Ectemnius*, 1984 (Murota)
*meridionalis*, ssp. of *Ectemniuis iridifrons*, 1984 (Murota)
*mindanaonis*, ssp. of *Dicranorhina ritsemae*, 1983 (Murota)
*mindanaonis*, *Crossocerus*, 1984 (Nozaka)
*mindanaonis*, *Piyuma*, 1984 (Murota)
*murotai*, *Pison*, 1983 (Murota)
*naguilianus*, *Dasyproctus*, 1984 (Murota)
*naguilianus*, *Liris*, 1983 (Nozaka)
*nozakae*, *Pison*, 1983 (Nozaka)
*ovale*, *Rhopalum*, 1984 (Murota)
*pagsanjan*, *Lyroda*, 1983 (Kurokawa)
*philippinica*, *Lyroda*, 1983 (Tano)
*philippinicus*, *Crossocerus*, 1984 (Tano)
*philippinicus*, ssp. of *Dasyproctus yorki*, 1984 (Murota)
*puncticeps*, *Dasyproctus*, 1984 (Murota)
*rugosellus*, *Ectemnius*, 1984 (Kurokawa)
*rugosus*, *Ectemnius*, 1984 (Murota)

## K. Tsuneki Types of Hymenoptera, all Sphecidae, in the California Academy of Sciences Entomology Collection (as of 28 November, 1994)

*by*

**W. J. Pulawski**
Dept. of Entomology, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118

*ambonense*, ssp. of *Trypoxylon thaianum*, 1978, holotype 13705
*arnaudi*, *Ammophila*, 1976, holotype 12546
*guadalensis*, *Dasyproctus*, 1983, holotype 15122
*manchurianus*, ssp. of *Ectemnius konowii*, 1976, holotype 12547
*saghaliensis*, ssp. of *Cerceris ruficornis*, 1968, holotype 10245
*solomonensis*, *Dasyproctus*, 1983, holotype 15123
*solomonica*, *Piyuma*, 1983, holotype 15125
*solomonicus*, *Ectemnius*, 1983, holotype 15124
*spinicollis*, *Lestica* 1976, holotype 12548
*tobleri*, *Lestica*, 1977, holotype 13734
*wegneri*, *Trypoxylon*, 1980, holotype 13706



*Anacrabro ocellatus* Packard, female, (Sphecidae), North America.

## THE MYTH AND DANGERS OF ELECTROSHOCK TREATMENT

### Electroshock for Treatment of Snakebites????

*by*

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Ugh, one of those horribly distasteful tasks one must do periodically. One of those tasks one simply would rather not do because it is such a waste of time (I could be writing interesting things for **Sphecos** instead), and it might alienate a few friends. But for the sake of colleagues and science, I must do it. I am referring to correcting the gross misinformation and wishful thinking (in other words, voodoo thinking) about electroshock for curing snakebite.

The idea of using electroshock from any of a variety of devices to cure snakebite is not new. It was first postulated in the 1880's and had a heyday in the 1920's, after which it was discarded because it was ineffective. The current shock treatment fad started in 1986 when a seven paragraph, half page testimonial appeared in the non-referred letter section of *The Lancet* (1). Because such an idea is so much fun to intellectualize (especially over a beer or two), it caught on (again) and all the facts and controlled experiments showing electroshock to be worthless were overlooked.

Let's get specific. Hemphill retold the old story in **Sphecos** 25:20-21 where he extended the usefulness of the shock treatment from snakes to bee, scorpion, and poisonous fish. I cringed. Then, to make matters worse, Collins (**Sphecos** 26:21) continued the story. And now it still continues (**Sphecos** 27:20). When will this silliness ever stop?

I feel it would be a disservice and dereliction of duty not to set the record straight so that hymenopterists are spared the potential risks of this treatment (see following article by Dr. Russell). In her comment, Collins added some "scientific reasoning" (horse sense) to explain why the method "works". Since we as human beings like to link our beliefs to logic and understanding, it is important to address these so called "logical explanations". She states

cardial infarction occurred in a 63-year old patient following the application of electroshock from the coil of a 75 h.p. outboard motor used to treat his rattlesnake bite.

Whatever their source, folk measures are hazardous because 1) they often involve dangerous procedures, and 2) they delay the use of really effective therapeutic procedures (3).

References


1. Richards, V. (1885). The Land Marks of Snake–Poison Literature, Being a Review of the More Important Researches into the Nature of Snake Poisons. Calcutta: D. M. Traill.
2. Russell, F. E. (1983). Snake Venom Poisoning. Great Neck, NY: Scholium International.
3. Russell, F. E. (1973). and Wainschel, J. Scorpion stings and spark plug shocks. J. Amer Med. Assoc. 225:419.
4. Index Catalogue of the Library of the Surgeon-General's Office, U.S. Army, Vol. IV (1899).
5. Kinne, W. W. (1857). Magneto-electricity, or electromagnetism, medically applied for the cure of disease. Instructions for its use, and references to cases of practice. Second printing, New York.
6. Larrick, J. W., Yost, J. A. and Kaplan, J. (1978). Snake bite among the Waorani Indians of eastern Ecuador. Trans. Roy. Soc. Trop. Med. Hyg. 72:542-543.
7. Theakston, R. D. G., Reid, H. A., Larrick J. W., Kapland, J. and Yost, J. A. (1981). Snake venom antibodies in Ecuadorian Indians. J. Trop Med. Hyg. 84:199.
8. Russell, F. E. (1980). Pharmacology of venoms. In, Natural Toxins, E. Eaker and T. Wadstrom, eds., Oxford: Pergamaon Press, p. 13.


**The Hammer Cure for Wasp Stings**

One of the simplest treatments for wasp stings requires only a hammer. After being stung, all the victim has to do is whack one thumb with a hammer. This will greatly relieve the pain from the wasp sting.

## WHY IS A VINEGAROON NOT A TARANTULA?

*by*

**Justin Schmidt**
*Southwestern Biological Institute, 1961 W. Brichta, Tucson, AZ 85745*

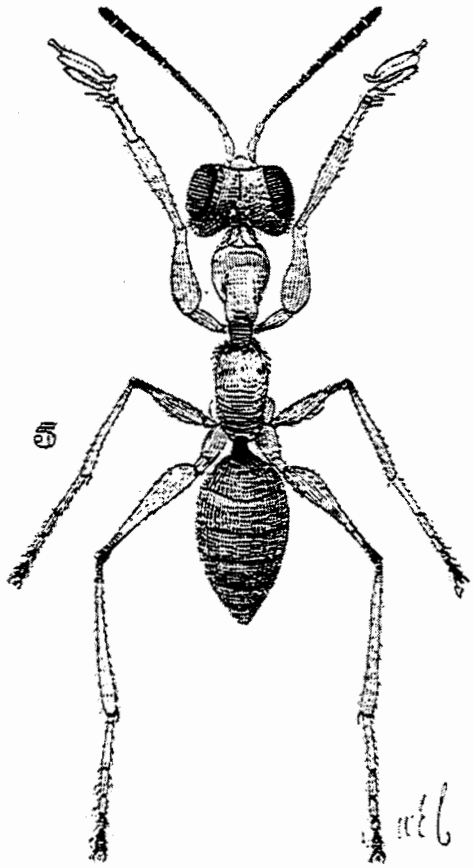
The title sounds like something my seven year old son would ask. But really, sometimes absurdity can draw attention to interesting questions. Tarantulas are well-known, large, fierce predators whose main interest to most hymenopterists (and I might add television film makers and the general public) is that pompilids prey on them as food provisions for their young. The spectacular battles of *Pepsis* and a tarantula are well known, and never fail to leave the viewer puzzling over "why" the tarantula doesn't simply take charge and make a fine meal of the *Pepsis*. So why does not some pompilid or other wasp (there are lots of sphecids out there) prey on vinegaroons (*Mastigoproctus giganteus*)? And why, for that matter, do not any Parasitica or even tachinids parasitize them? Vinegaroons and tarantulas are similar in many respects – they are both large, nocturnal, long-lived, warm climate generalist predators, that live in underground burrows during the day. The main physiological differences between the two are that tarantulas produce venom and vinegaroons, as the name suggests, produce concentrated acetic acid (plus a short chained lipid-soluble fatty acid). Back to the original question – why do vinegaroons not have insect parasites? I don't think one can argue that the physiological defenses of vinegaroons are better. Sure they could spray the vinegar on potential assailants, but then again, tarantulas could equally well grab and bit potential attackers (anybody who has seen a tarantula in action can attest to how fast and strong they are).

So what is the difference between the two groups? Anybody have any observations of wasp parasites or predators of vinegaroons, or why they don't have any? My only speculations are that it is just a fluke of random chance, or a result of phylogenetic constraints – neither being particularly satisfying.

## BIG BLUE BOOK ERRATA
### Installment 23

p. 115, RC, L 26: *ruficauda* is correct (name is a noun)
p. 116, LC, L 6: *nubilus* is an unavailable name under provisions of Article 16 of the ICZN
p. 124, LC, L 28: 1849 is correct, not 1848.
p. 134, LC, L 16 from bottom: 1849 is correct, not 1848.
p. 146, LC, L 14 from bottom: 1849 is correct, not 1848.
p. 272, LC, L 24: 1849 is correct, not 1848.
p. 275, RC, L 15: 1849 is correct, not 1848.
p. 310, RC, L 11 from bottom: change (1961) to (1961b)
p. 349, LC, L 22 from bottom: add after 1912: nec Stephens, 1829.
p. 425, RC, L 8 from bottom: (*Melanocrabcro*) was correct spelling in Giffard, a typographic error.
p. 544, RC, L 17: change (1960) to (1961a)
p. 547, RC, L 17 from bottom: 1907 is correct, not 1906.
p. 564, RC. last L: 1849 is correct, not 1848.
p. 596, RC, L 8: Nachrichtenblatt Bayer. Ent. is correct
p. 596, RC, L 13: Guiana is correct, not Buiana
p. 598, LC, L 2: 1917 is correct, not 1916. Apparently not actually cited in text of book.
p. 598, RC, L 19: vol. is 17, thus: 17 (A) 47:48.
p. 599, RC, L 12: 1929 is correct, not 1930.
p. 600, LC, L 30: vol. is 35, not 34.
p. 600, RC, L 6: Dutt, G. R. is correct
p. 601, LC, L 7: 1961 is correct date, not 1960a. Thus it should read 1961a, and L 12 entry should be 1961b.
p. 602, LC, L 15 from bottom: pages are 535-586, not 558.
p. 607, LC, L 15: vol. is 7, not 8.
p. 609, RC, L 21: pages are 305-330, not 300-304.
p. 609, RC, L 26: insert Roy. Sci. Nat. after Inst.
p. 610, LC, L 29-31: delete entire entry for Leclercq 1964. Paper was published 1954, and is listed as 1954b on p. 609.

Leclercq, Jean
1993. Une espece nouvelle d'*Odontocrabro*, du Maroc. Lambillionea 93(2): 191-192.
1994. Un hyménoptères Sphecidae vert bleuté, *Chalybion zimmermanni* Dahlbom *aztecum* (Saussure), égaré en Belgique, à Tournai. Lambillionea 94(3):367-370.
Makino, Shun'ichi and Katsuhiko Sayama
1994. Bionomics of *Elasmus japonicus* (Hymenoptera, Elasmidae), a parasitoid of a paper wasp, *Polistes snelleni* (Hymenoptera, Vespidae). Jpn. J. Ent. 62(2):377-383.
Mauss, Volker and Michael Ohl
1994. Die Bedeutung der Phylogenie für Systematik und Taxonomie. Anmerkunger zum Kommentator von Peter Kunz zu "Chrysidid Wasps of the World" (Kimsey & Bohart 1990) im bembiX Nr.2. bembiX (3):23-26.
Miyano, Shinya
1994. Some ecological observations on social wasps (Insecta: Hymenoptera: Vespidae) in the northern Mariana Islands, Micronesia. Nat. Hist. Res., Special Issue, No. 1:237-245.
Mulhauser, Blaise and Richard Vernier
1994. Une migration groupée de fondatrices de Frelon, *Vespa crabro* L. (Hymenoptera, Vespidae). Mitt. schweiz. ent. Ges. 67:61-65.
Naumann, I.D., J.C. Cardale, R.W. Taylor and J. MacDonald
1994. Type specimens of Australian Hymenoptera (Insecta) transferred from the Macleay Museum, University of Sydney, to the Australian National Insect Collection, Canberra. Proc. Linn. Soc. N.S.W. 114(2):69-72.
Nilsson, Göran E.
1992. New records of Hymenoptera Aculeata from Sweden. Ent. Tidskr. 113(4):53-57. (in Swedish with English abstract)
Nonveiller, Guido
1994. Revision des mâles du genre *Stenomutilla* de la Paléarctique occidentale avec description d'espèces nouvelles (Hymenoptera, Mutillidae). Boll. Mus. civ. St. nat. Verona 18(1991):137-194.
1994. Description du nouveau genre afrotropical *Spinulomutilla* et de onze espèces nouvelles (Hymenoptera: Mutillidae) (Première partie). Ann. Soc. Entomol. Fr. (N.S.) 30(3):329-344.
Olmi, Massimo
1994. Taxonomic studies on the Dryinidae of Mozambique (Hymenoptera: Chrysidoidea). Oriental Ins. 28:67-80.
Pagliano, Guido and Pier Luigi Scaramozzino
1994. I problem di conservazione della Collezione Costa. HY-MEN 5:4-5.
Pawlyszyn, B.
1994. Observations on the life cycle and behaviour of the hornet *Vespa crabro* (Hym., Vespidae) in Gloucestershire. Ent. Mon. Mag. 130:159.
Peckham, D.J. and A.W. Hook
1994. Nesting behavior of *Enchemicrum australe* (Hymenoptera: Sphecidae). Ann. Ent. Soc. Amer. 87(6):972-977.
Polaszek, Andrew and Karl V. Krombein
1994. The genera of Bethylinae (Hymenoptera: Bethylidae). J. Hym. Res. 3:91-105.
Quintero A., Diomedes, and Roberto A. Cambra T.
1994. Systematics of *Pseudomethoca areta* (Cameron): sex association, description of the male and a gynandromorph, and a new synonymy (Hymenoptera: Mutillidae). J. Hym. Res. 3:303-308.
Rotheray, G.E. and R.M. Lyszkowski
1994. *Ornatus aeneus* (F.) (Hym., Chrysididae) new to Scotland. Ent. Mon. Mag.130:102.
Sáiz, Francisco and Carlos Carvajal
1993. Incendios forestales en el Parque Nacional la Campana, Sector Ocoa, V Region, Chile. V. Blattodea, Formicidae y Mutillidae. Impacto y recuperacion. An. Mus. Hist. Nat. 21(1990):51-61.
Scaramozzino, Pier Luigi
1993. Il nido pedotrofico di *Isodontia splendidula* (Costa) (Hymenoptera: Sphecidae). Boll. Mus. reg. Sci. nat. Torino. 11(2):277-288.
1994. Gli Imenotteri di Massimiliano Spinola al Museo Regionale di Scienze Naturali di Torino. HY-MEN 5:2-3.
Schmidt, Justin O.
1994. Let's not forget crawling Hymenoptera. Clin. Exp. Allergy 24:511-514. (venoms of ants compared to those of honey bees and vespid wasps)
Simon Thomas, R.T.
1994. Two new species of a new genus of Sphecidae from Senagal and Yemen (Hymenoptera). Ent. Ber., Anst. 54(8):154-157.
Smith, K.G.V.
1993. Insects of minor medical importance, p. 576-593 *in*: Medical Insects and Arachnids, Richard P. Lane and Roger W. Crosskey (eds.). Chapman & Hall, London. (Hymenoptera: p. 581-583)
Sugden, Evan A. and R. Lowrey McAllen
1994. Observations on foraging, population and nest biology of the Mexican honey wasp, *Brachygastra mellifica* (Say) in Texas [Vespidae: Polybiinae]. J. Kansas Ent. Soc. 67(2):141-155.
Terayama, Mamoru
1994. *Goniozus marianensis*, a new species (Insecta: Hymenoptera: Bethylidae) from the Mariana Islands, Micronesia. Nat. Hist. Res., Special Issue, No. 1:229-230.
Tobias, V.I.
1993. Relationship between wing venation and habitat in the Hymenoptera. Ent. Rev. 72(3):8-17.
Turillazzi, S., E. Francescato, A. Baldini Tosi and J.M. Carpenter
1994. A distinct caste difference in *Polybioides tabidus* (Fabricius) (Hymenoptera: Vespidae). Ins. Soc. 41:327-330.
Weaving, Alan J.S.
1994. Nesting behaviour in three Afrotropical trap-nesting wasps, *Chalybion laevigatum* (Kohl) *Proepipona meadewaldoi* Bequaert and *Tricarinodynerus guerinii* (Saussure), (Hymenoptera: Sphecidae, Eumenidae). Entomologist 113(3&4):183-197.
Yamane, Seiki and Shuichi Ikudome
1992. Guide to the identification of Japanese Aculeata. Nat. Insects 27 (5):22-27. (in Japanese)
1992. Guide to the identification of Japanese Aculeata (2). Nat. Insects 27 (10):21-25. (in Japanese)
Zuparko, Robert L. and Junji Hamai
1994. Depositions of parasitic Hymenoptera (Insecta) types from the University of California, Berkeley. Pan-Pac. Ent. 70(4):313-317.



*Gonatopus solitarius* (Perkins), female (Dryinidae), North America.

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