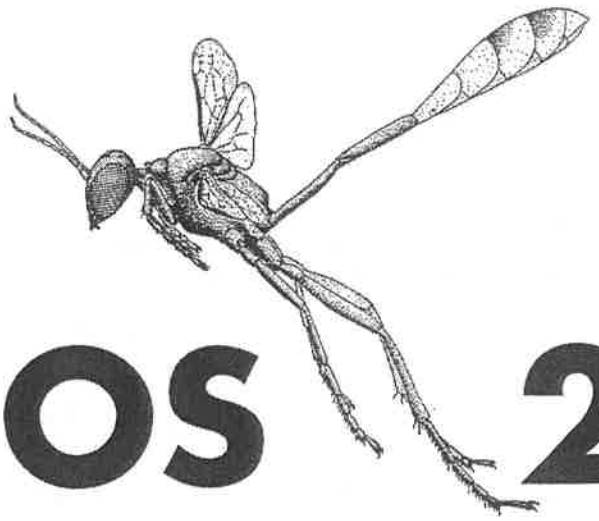

DECEMBER 1994

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.

Franco Strumia
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Fernando Fernandez
Niels Peder Kristensen
Alessandro Mochi
Andreas von der Heide
Harry Empey
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

SPHECOS ONLINE

The National Museum of Natural History of the Smithsonian Institution recently instituted a Gopher service, and the Department of Entomology asked the editors of **Sphecos** to provide a plain text copy of No. 27 to include in the service. We have made available a version of **Sphecos** 27 that includes the original text of most of the articles as well as timely announcements and the Recent Literature. Unfortunately, we were unable to include any illustrations or non-English articles due to the nature of the medium. The results look good on a Test Gopher, and it is hoped that **Sphecos** will be available to the general public sometime in December, 1994. New issues of **Sphecos** will be added when they are published. (Issue 28 should also be available by the time readers receive it in the mail.) We do not intend for the online version to replace the printed copies. Rather, we hope to reach a wider audience beyond our core of aculeate researchers, and to provide timely access for those of our readers who must wait months for delivery of their printed copy.

If you have access to the Internet and Gopher capabilities, you can reach the Natural History Gopher at:

nmnhgopher.si.edu port 70

There is a menuing system to navigate around the offerings from the various natural history departments. Choose "Entomology at the Smithsonian Institution" and then "Entomology Newsletters" to find **Sphecos**.

E-MAIL ON THE INTERNET

by

Terry Nuhn

A new tool for communication is E-MAIL (electronic mail) on the INTERNET. Increasingly, scientists are depending on E-MAIL to send messages quickly and safely to one another, and among aculeate wasp workers, a small but growing number have found E-MAIL to be important in their work. **Sphecos** regularly publishes E-MAIL addresses, and in the mailing list (p. 35), we have included all such addresses that have come to our attention. It seems appropriate, then, to include a discussion of the INTERNET in this issue.

The INTERNET is a world-wide computer network connecting thousands of local networks, including governments, corporations and educational institutions. Millions of people on every continent have access to the INTERNET, which they use for E-MAIL, public distribution of documents, databases and computer programs, discussion groups, game playing, and even business. Local computer networks can have a direct connection to the INTERNET, becoming a node in the system. Individuals usually have to make a connection using a third party provider, like CompuServe or MCI Mail. BITNET is a separate network of mostly IBM mainframe computers. Many of these computers also have an INTERNET address. Those that don't, can send and receive E-MAIL through a BITNET gateway.

E-MAIL is the most basic service on the INTERNET. A message typed on a computer can be sent to anyone in the world who is connected to the INTERNET. The message is passed from node to node until it reaches the local network of the recipient, and can travel any of a number of different paths to get there. The rules governing how a message travels (the TCP/IP network protocol) is the same for all the node computers, but the software that the individual uses to send and receive mail may differ from computer to computer. If your network has E-MAIL, you must see your system administrator to learn how to use this software.

When you send an E-MAIL message, you must have an E-MAIL address to send it to. This cryptic string of letters consists of two parts: the person's name before the "@" and the computer's address after the "@". My address is TNUHN@asrr.arsusda.gov (case is not important). There are 3 parts to my computer's address, separated by periods. The first part is the computer's name. We call ours "asrr" for Agricultural Systems Research Resource, reflecting the government's love for impressive sounding names. There are few restrictions on what you can call your computer. **Fred Gess** is on a computer named "girafffe", while **Sarah Gess** is on another called "warthog". With some networks there may be more than one computer name in the address, while in others the computer name is unnecessary. The second part is the company or organization. Here it's "arsusda" for Agricultural Research Service, U.S. Dept. of Agriculture. The last part is the zone, in this case "gov" for government, a three-letter organizational name. Other organizational names include "com" for commercial, "edu" for educational, and "mil" for military, among others. Some zone names are two-letter geographical names, which are mostly country names, like "au" for Australia, "ca" for Canada, "fr" for France, and "uk" for the United Kingdom.

Other ways to use the INTERNET include logging onto a distant computer and browsing (telnet and Gopher), transfering files to your own computer (FTP), or searching for addresses (finger) and files (Archie). These require special software on your network. Check with your system administrator to see what's available. You can also subscribe to newsgroups like **Mark O'Brien's** ENT-LIST (see **Sphecos** 19:35) or Entomol-L. (You can join the latter by sending an e-mail message to LISTERV@uoguelph.ca. In the message, say "subscribe ENTOMOL-L [your name]".)

RESEARCH NEWS

Gabriel Augusto R. de Melo (Snow Entomological Museum, Snow Hall, University of Kansas, Lawrence, KS 66045) writes: "Since August 1993, I have been in the Ph.D. program of the Department of Entomology at the University of Kansas studying the phylogenetic relationships among the genera of the tribe Pemphredonini, under **Byron Alexander**. I am just beginning my research and am trying to select appropriate taxa and borrow material necessary for my work. Nontheless, I hope I will be finished by July, 1997. I would really appreciate receiving any specimens of Pemphredonini, either male or female, preserved in fixative (Kahle's, Dietrich, Bouin, etc.)."

Arkady Lelej (Institute of Biology and Pedology, Vladivostik-22, 690022, Russia) reports: "We just finished the galley proof of the book 'Key to the insects of Far East Russia', vol. 4, pt 1 (wasps and bees) and we hope that copies will be printed early next year."

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.

Recently, I heard that part of Schrottky's collection has been kept in a Paraguayan bank and that it was recently transferred to a Paraguayan University or Museum.

It is extremely important that the collection maintained by Schrottky in Paraguay is found and studied, if any part of it still exists. I am, thus, trying to find people in that country who could give me any clue about it. Any information leading to such a person or to Schrottky's collection will be most welcomed!

Literature cited

Grissell, E. E. 1979. The Schrottky collection. Sphecos (1):18.

Sachtleben, H. 1938. Aus der entomologischen Welt. Arbeiten uber morphologiesche und taxonomische entomologie aus Berlin-Dahlem 5(3): 295.

Townes, H. and M. Townes 1966. A catalogue and reclassification of the Neotropical Ichneumonidae. Memoirs of the American Entomological Institute 8:1-367

Polistes enemies

New Zealand has two introduced *Polistes* species: *P. humilis* and *P. chinensis*. *P. chinensis* in particular obtains high densities in warmer northern regions. In Auckland (New Zealand's largest city) many people are stung by paper wasps and densities of 150 nests per hectare have been recorded in a lowland swamp habitat. We are considering introducing some biological control agents in an attempt to reduce *Polistes* densities. If you have any thoughts as to ideal candidates or are intesested in collecting parasitized nests to send to us once an importation permit has been obtained I would like to hear from you. Initial importation will probably be from North America.

My address and contact:
Richard Harris
Manaaki Whenua-Landcare Research
P O Box 69
Lincoln
New Zealand
E-mail: HarrisR@Landcare.CRI.NZ

SPHECID BIBLIOGRPHY

I have compiled a bibliography of Sphecidae that includes nearly 6000 titles in a computer text file. Although the bibliography is still incomplete (it does not even include some papers listed in *Sphecid Wasps of the World* by Bohart and Menke), it is a powerful resource even in its present form. Also, it is being constantly corrected, updated and developed, probably averaging one new record a day. Upon request, I am willing to send a copy to any interested person, preferably through Internet. In some cases, I would be willing to send diskettes or printed copies.

I would ask a favor from any user: to send information about errors and omitted papers.

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Don Horning: "Wyllella", RMB 902, Loomberah via Tamworth 2340, New South Wales, Australia.

Gerald Legg: Booth Museum of Natural History, 194 Dyke Road, Brighton BN1 5AA, United Kingdom.

Monica Raveret-Richter: Dept. of Biology, Skidmore College, Saratoga Springs, NY 12866-0851.

Nico Schneider: Centre Universitaire de Luxembourg, Département des Sciences, 162a, avenue de la Faïencerie, L-1511 Luxembourg.

Rob Tuckerman: 82 Dublin St., Peterborough, Ontario, Canada K9H 3A9.

MISSING PERSONS

Kenneth A. Bloem of Davis, California.
Barbara J. Hager of Albuquerque, New Mexico.
Li Qiang of Beijing, China.
Wolfgang Schlaefle of Magden, Switzerland.
Dr. A. Steiner of Edmonton, Canada.
Joachim R. Walther of Berlin, Germany.

PEOPLE IN THE NEWS

Don Horning's Narrow Escape

Don Horning retired October 7, 1994 from the Macleay Museum, University of Sydney, Australia, and he and his wife Darien, moved to a cattle station 25 km out of town. To celebrate the occasion, Don arranged a flight for Darien and himself to Lord Howe Island for a period of relaxation. Don wrote as follows: "We had 4 bags - 95 lbs. - all my research gear for 3 projects, cameras, books, clothing, collecting gear, etc. I helped the pilot load our gear on the Aero Commander, and we were about to board when the chief pilot came out and said that there was a last minute cancellation and that he could take two passengers. We were closest to him so we went on the other plane. The first plane, with our luggage and 9 people on board, blew up at 27,000 feet halfway to Lord Howe Island. The only positively identified bit recovered from the wreckage was one of our daughter's teddy bears that she had given her mother as a good luck charm. We will put that bear in a gold box when we get it back from the coroner next August! Needless to say, it was a most sobering 'exercise', believe me. We ended up with only the clothes on our backs, but at least we are alive. I now have cancelled the three research projects on Lord Howe and Norfolk Islands (pseudoscorpions, pselaphids and tartigrades)."

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.

Laurel Hansen
Richard Zack
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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.

The book still remains unpublished, but at least we have the following story about Tsuneki's life and work. Unfortunately, he omitted mention of dates for various significant events but I have inserted them in brackets when known. Much of the following story, unfortunately, dwells on things other than his work with insects, but our Tsuneki obituary in **Sphecos** 27:5-6 covers some of his research and other items (editor).

Recollections of my life (extracts)
by
Tsuneki Katsuji

(Translated from Japanese by
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Hokkaido University, Kita 9 Nisi,
Kita-Ku, Sapporo 060 Japan)

I intended to publish a book of the recollections of my life at my own expense, and add it to the last issue of this journal [*Hymenopterists Communication*]. However, I knew that this would be impossible because too many things happened in my life; therefore I decided to publish extracts of my recollections here, and want to say good-by to my friends of this journal.

The book "Souvenirs Entomologiques" by Jean Henri Casimir Fabre led me to the study of the habits of wasps, just as it did for many other scientists who study them. Moreover, judging from Fabre's biography by G. V. Legros ["Fabre, Poet of Science"] and Fabre's own recollections, my personality and childhood environment were also similar to those of Fabre.

My family was too poor to send me to high school. (At that time, only very rich people could attend. The entrance examination was very difficult, so only half succeeded.) However, an old and noble widow in my neighborhood who loved me, provided the financial support in order to allow me go to the school with her grandchild. (Indeed, she told me to take the examination only a few days before it was held. In those days this was possible.) I also entered a higher normal school because I could study there free, and even get a scholarship with good grades (Fabre also studied in a normal school free). I chose biology not only because I liked living things, but because I thought that I tried to study lives themselves after I suffered from problems of the human life [took a pessimistic view of life (alternative view by translator)] when I was a high school student. At first I intended to study cytology. I enthusiastically studied protozoa and plants after the school permitted me to borrow a microscope.

When Osugi Sakae's translation of "Souvenirs Entomologiques" into Japanese was published, this book completely changed my interest from cytology to insects. I studied the habits of wasps enthusiastically every summer vacation, and contributed the results to the Journal of Natural History, Tokyo. The reason why I was attracted to the book was not only that it described the interesting lives of insects, but also because Fabre tried to look into the depths of the minds of insects, especially wasps, by his skillful techniques. Here I differ from Dr. Iwata Kunio, who was similarly motivated and began to study wasps, because I was poor. So, even now I think that Lubbock was the founder of animal psychology in the laboratory and Fabre was the founder of animal psychology in the field.

I was also a serious student. I thought that it was necessary to get a solid and elementary knowledge in biology in order to become a good teacher of natural history in a high school, and to tell the truth, I just liked to observe nature. Thus I participated in the meetings about collecting plants by Dr. Makino Tomitaro, and the meetings on collecting insects by Dr. Yano Sokan. (I think that the Japanese society of insects stemmed from this meeting.) The trip to collect alpine plants in Okunikko in the summer of my first degree in high school was especially impressive. (At that time the place was not damaged, and scientists could freely collect plants.) I lived in lodgings for two years after living in the dormitory of the high school. I worried housemothers of the lodgings because my room became a house of insects. I bred many caterpillars of butterflies, and many species of ants in artificial ant nests. I was also eager to observe spiders outdoors at that time. However, this was not all that I did.

One group of my classmates in high school studied communism, and they lent me a red book of Yamakawa Hitoshi. This was a very important event for me. In those days it was natural that people who had red books were regarded as unpatriotic and were often arrested by the special political police. However, the book amazed me because it made me understand the sins of the capitalistic society for the first time. I immediately joined the seminar of the group. We always had a watchman to protect us from the special political police during our seminar discussions. I read all the red books I could get. I also took interest in ethics and philosophy, and read books about these subjects. I frequently went to the library of higher normal school's dormitory which was open all night, and where there were many philosophical books. The words and phrases of philosophical books were difficult. With a philosophical dictionary I read books of Kant, Descartes, Schopenhaur, and Spinosa. There was a ethical lecture in my school. I often asked the teacher questions, and embarrassed him. Sometimes I continued arguing with him in his room after lessons. In those days ethical teachers were regarded as great scholars. Although I studied communism very much, I could not become a pure communist because communism often ignores humanity, and controls people as in feudalism. (The first translator of "Souvenirs Entomologiques" into Japanese, Osugi Sakae, was an anarchist. He translated it in prison.)

As soon as I graduated from the higher normal school, I joined a balloon corps in Chiba Prefecture as a supplementary recruit. Supplementary recruits were not able to apply to be military cadets; only graduates of high school or the university could become military cadets. So, I was an enlisted man in the corps for two years [1931-1932]. (Military cadets could become a second lieutenant after one year.) This situation seems to have been caused by an ill-natured army surgeon. During my physical examination for conscription, I said honestly that my left ear was deaf. I suffered from otitis media in my childhood. A probation doctor ruptured the tympanum by mistake, and it did not vibrate after its regeneration. Everyone around me knew this fact, but I was regarded as a draft evader. After I was tortured, what I had said was regarded as a lie. I passed the examination as the third degree. At that time, men who passed the exam as the first degree had to serve in the army, but almost all who did as the second and third degree did not have to serve in the army. The military cadet was a volunteer who paid

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

another promotion, and I earned more than 1.7 times of that of people of the same rank in Japan because of my overseas service. The assistant position at Hokkaido University was at a much lower rank than the one I had in Keijo, and my income decreased by two-thirds. People in Hokkaido University felt sorry for me, and they made me an instructor of an extra training school for teachers, and also a teacher in a nurses' training school. However, the income from them was very little.

Japan was defeated the year after I moved to Hokkaido. Rich men had to live in the same way as poor men because materials were extremely short in those days. So our poor life was not so conspicuous. Fortunately, I was able to bring all of my collection and my observation records made in Korea, to Japan, because I moved before the defeat.

I was a clerical assistant of the Zoological Laboratory in the Faculty of Science, Hokkaido University, not a formal scientist. However, Dr. Uchida planned to bring up a scientist from the position. He was tolerant of my study, and even recommended it. Since I had an assistant who did miscellaneous business, I could go collecting and researching in the field after I finished important works and told Dr. Uchida about it.

I wrote a book "Hunting wasps" when I was in Keijo. I handed it to Dr. Yano, and he sent it to a publishing company. I heard that it had been burned in the conflagration of the Tokyo air raids. However, someone sent the manuscript back to me in Hokkaido University after the defeat. Of course, the publishing company had not been able to publish it. Dr. Uchida helped me to get it published through the Hoppo Publishing Company in Hokkaido. Since I had all negatives at hand, I could add frontispieces to the book, but the book was made of coarse paper due to the shortage of materials. It was sold out soon after the publication. It was reprinted, and 5000 copies were sold [The Japanese Hunting Wasps, Their Ecology and Psychology, Sapporo, 1946], but it was impossible to continue reprinting it also because of the shortage of paper.

The defeat of Japan was six years after I came back to Utsunomiya from northern China. Most soldiers I worked with in northern China were sent to southern islands [of the Pacific], and died. I heard later that the reasons why I was not called up again were that I belonged to reserves of the Kanto Army when I was in Korea, and that I was one of the commanders of the bamboo spear corps of students, which was going to defend Hokkaido to the death, in Sapporo. After the defeat of Japan, the U. S. forces were stationed in Sapporo too. American soldiers often came into the university, and looked around restlessly, but never disturbed us or did mischief. We (teachers and students) cultivated potatoes in the playground of the university, and pumpkins and beets on the edges of an airport. Nevertheless I often went collecting wasps at Jozankei on fine days. It was an extraordinarily attractive place for hymenopterists.

Although I don't recall the beginning of the following event, one day a master sergeant of the U. S. forces came to my office, and asked me to mediate between him and a proper teacher of parasitology. He told me that he was a graduate of Ohio State University, and wanted to continue studying parasitology. Dr. Uchida introduced to me Dr. O, who was an assistant professor of the zootechnical laboratory in the Faculty of Agriculture. Dr. O told me that he could not teach the sergeant by himself, and asked me to serve as a intermediary between them, because the sergeant was not able to come to the University regularly during the day. He came to my place every night, noted down homework and hints given by Dr. O, and reported his results. At first it was difficult for me to talk with him, but my ability to speak English improved after talking with him every night. Sometimes I let him correct my papers. He was a frank guy, and sometimes gave me white bread, which was a very rare food for Japanese people at that time. However, only three months later he was transferred from Sapporo before he finished his first subject.

Dr. Remington, a lepidopterist (butterflies) [Charles L. Remington?], also came to Sapporo as a sergeant. When he left Sapporo, he invited entomologists in Sapporo over for a party. It was impressive. He treated us to white bread, butter, ham, coffee, and so on. Since we ate mostly potatos, very little rice, and wild herbs every day, we were surprised and exchanged glances at each other at the table.

My studies were diverse, i.e., taxonomy of Crabroninae, Chrysididae, and *Pemphredon*, and observations on the nests of Crabroninae, *Pemphredon*, and *Polemistus*, which were numerous in dead trees on the campus of the Faculty of Agriculture. However, these were all side projects. My main theme was the study of the sensory physiology of ants. Some of my results contradicted the ideas of a famous European scientist, but Dr. Uchida would not allow me to publish it so easily. He probably thought that it was necessary to gain unquestionable proof before challenging famous studies. I repeated the experiments using many species of ants. I still doubt, for example, the "'ants' time consciousness hypothesis".

I found a huge colony of *Bembix* in a sand dune along the Taru river, 10 km north of Sapporo. I was absorbed in its study. As for general habits, I had already studied them intensively when I was in Chiba and Utsunomiya; therefore I concentrated on the psychological study of behavior in nests. After securing Dr. Uchida's permission, I went there by bicycle over bumpy roads on every fine day. (At that time bicycles were very rare. When a tire or tube was damaged, there was no way to replace them. I had a used, imported bicycle which was the only thing my father left.) I ate only potatos with salt, and drank water at lunch, but later a farmer near the field sometimes gave me pumpkins and water.

I dug a hole to expose the larval cell in the nest from behind, and replaced the cell with a glass tube or glass box, and moved the larva and fly prey into it, or removed them. After that I observed the behavior of the female parent. I also let the wasps learn mazes using many kinds of glass implements made in the glass factory of the Faculty of Science. I tested the discriminative ability of the larvae too.

My study field was also the battle practice field of the U. S. infantry corps. The soldiers often came to me, and asked many questions. I showed them my instruments for experiments, and explained my study in order not to be disturbed by them. Most of them regarded me as a university scholar, gave me respectful looks, and went away, regardless of whether they were black or white soldiers. They never behaved arrogantly in spite of their victory. I could guess how scientists were thought of in the U. S. A.

I also observed the habits of *Oxybelus bipunctatus*, and many species 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-

er of Mandarin, to whom my corps introduced me. My corps occupied the Art University, and stayed there, but officially we borrowed the buildings; therefore, the building manager lived in a small house on the campus. When I was free I went to his place and talked with him every night in order to learn Mandarin as soon as possible. I had memorized many Chinese poems and writings, which are very eloquent, because I liked them when I was a high school student. He was pleased to know that I appreciated Chinese culture when I wrote these poems on sheets. He sang them for me in the Chinese original style with his sonorous voice. He seemed to be very surprised when I wrote the long writings of "Kikyoraiji (Gui qu lai ci)" and "Sekihekifu (Chi bi fu)". He gazed at me, and smiled. I sometimes recite these beautiful passages even now.

At the time of my retirement [1973], I moved to [Mishima,] Shizuoka [Prefecture], where it is warm, because I knew that in the very cold city, Fukui, the devil snow is a very strong enemy against the old.

My wife had already bought 330m of land and a one-story house on loan. My retiriment allowance, excluding the payment of the loan, was shared between the two of us. My share represents the main capital for publication of the SPJHA [*Special Publications of the Japan Hymenopterists Association*]. The reason why I have continued publishing the journal until now, the end of 1986, is that I render all figures by myself. I did not make regulations for members of the Japan Hymenopterists Association so that anyone could join the association easily (I do not like such a formal thing). However, regulations are necessary to have the journal approved as scientific printed matter, so that postage is reduced. So, the trouble is the postage on it. I am trying to condense papers and save pages, but I usually spend more than a hundred thousand yen on each mailing.

Many reprints and journals come to me in exchange. I thankfully receive these reprints because most of them are from Hymenopterists, but the journals are unmanageable. The floor of my room is almost collapsing. When I was at Fukui University I arranged reprints in three kinds of card files in cooperation with Dr. Sasaji and Mrs. Nakamura. Recently I stopped arranging them because it was too time-consuming. Now I am just piling them by authors. It is very troublesome to find even my own reprints because there are so many. The height of them piled up is about 55 cm. Most of them are about Hymenoptera, and some are about birds. I am sometimes asked by foreign and native scientists to send all my reprints, but it is too annoying. The price of my reprints published up to the middle of my stay at Fukui University in a catalogue of a Dutch second-hand book store was more than a hundred thousand yen. Printing is the only expense of producing the SPJHA (my labor of typing is free.) The price for membership in the association is half the SPJHA price in principle, so that anyone can get it, but the sum of the price of all volumes is sixty five thousand yen. Of course second-hand stores will not sell such rare journals at the fixed price. I send 250 copies of the journal to research institutes around the world, 25 copies to Japanese members, and only 7 copies to domestic institutes.

I also have many reminiscences as a teacher. I tutored twice. The first time was when I was in the higher normal school and needed to buy expensive foreign books. The other was the period after I was discharged from military service until I got the job in Utsunomiya. Most students were dull upperclass ones in the old system junior high school, and they were preparing for the senior high school examination. I was good at mathematics (I read many mathematical books while in junior high school) and English. I think that I could always give them some hints to the questions they brought from their school, and show them how to solve questions by themselves. I once made a boy, who was an assistant leader of a bad boys group, to leave the group and reform himself (I was mistreated by the boys), and enter a senior high school. Anyway, I am convinced that my tutoring gave considerable satisfaction to the parents.

My time in Utsunomiya was the most joyful in my life, though I was in tight circumstances because I wore very good clothes on loan, sent money to my parents, and was getting out of debt. Although I am short, I was a better player of sports than most people. I was especially good at ball games. I was a soccer and tennis player in my junior high school (though my teams were not so strong); therefore I became a coach of basketball and ping-pong clubs when I started for my position in the Second Women's High School. The schoolgirls and I promised not to call each other mister and miss. I was also a player in a card-playing party [a Japanese traditional game] in my higher normal school. By using this technique I called the schoolgirls by their first names at the second class, and surprised them. I taught them how to take notes from my lectures in my first class, because I treated textbooks as only supplementary readers or reference books as I did anywhere and anytime. I gave them summer vacation homework: the observation of plants and animals, not collecting them. However, I appreciated their collecting if they did it voluntarily. It seems that I was their object of adoration because I was single, promising, and good at many kinds of sports. This is when I was suddenly called up and sent to the war front in northern China [1937]. I had a flood of their letters at the front, which made the soldiers of my corps envious.

In the corps, I worked with a wireless operator in the same room. He monitored cryptograms of meteorological signals transmitted by the enemy. My work was recording cryptograms and presenting them to the officer in charge, who decoded them and drew weather charts. I was a much better illustrator of the chart than him because I had much experience with it in the balloon corps, though he had a little experience. However, because I was only a corporal, I could not do it. The enemy sometimes changed the way of making cryptograms. Sometimes they were made so difficult that no one, including the officer, could decode them. He had been annoyed by them for a week, but I was not permitted to help decode them. However, I was given some cryptograms by the wireless operator secretly, and analyzed them. I had already known changing patterns of the meteorological factors from my experience in the balloon corps. It was not so difficult for me to decode them from my knowledge. Soon I presented my results and proofs to the officer. He immediately showed them to the commander. They became the basis of making weather charts throughout the flying corps. (Later I heard that the officer was conferred a decoration. Nevertheless, I was only used as a de-

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-

sistant professors in their chairs. However, it was impossible to lower their rank; therefore, I claimed to maintain the system of chairs in order not to confuse the system any more, and made efforts to provide the post of professor for chairs which had no professor. I recommended assistant professors, assistants and students to write papers, because I had claimed that the examination for professor and assistant professors must be strict.

The attitude of the faculty of the Department of Education was totally uncertain. When trouble occurred, members of the faculty always asked some universities in the neighborhood how to deal with them. I asked them where was the self-governing of the university, and forced the dean to do many things. I am a good controversialist, and seldom lost in debates in spite of my unreliable looks. Maybe he did not like me because I was unmanageable. One year later I stopped being a councilor. Moreover, I never tried to be dean of the department.

Since I was in the Department of Education, I did not try to make students in my laboratory specialists (the other reason was the lack of literature), and selected easy themes for them, which could be continued as their hobbies in the future. I also enthusiastically lectured on biology in general. A dull-headed student who was not promoted several times said to me that my lectures were always interesting because they changed every year. It is probably not just a compliment. I was not a famous professor. I did not give a special lecture when I left from the university. My last lecture on general subjects, which I gave as a special lecture, was about the ruin of human beings based on evolution. I said that the intelligence which made human beings successful would also lead to their extinction. Judging from the nuclear problem and molecular biology, I am sure it will.

When I left Fukui University, I declined to be a professor emeritus, though I satisfied every requirement. Honor is given to a professor emeritus when he reaches the age of 70, and his death is noted in a newspaper obituary. I do not need either of them. The members of the council were puzzled because it was unprecedented, but they finally accepted it.

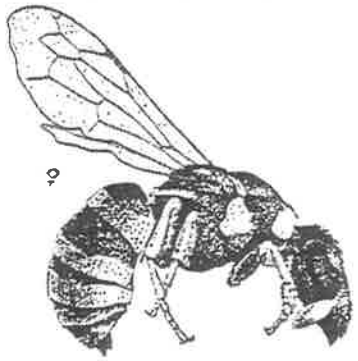
I want to write a little about languages. Dr. [Keizo] Yasumatsu was an expert of several languages. He was unusual as a Japanese entomologist who is a graduate of the faculty of agriculture. Perhaps he was influenced by Dr. Esaki. However, some famous Japanese entomologists cannot even read French in spite of many French papers in their field. I wonder how they understood them. A German friend of mine told me that he had written a letter in German to another Japanese entomologist, but received no answer from him. He asked me whether the Japanese scientist could read German or not. I answered that every Japanese scientist could read German because they must have learned it in their universities.

When I was a first degree in the higher normal school, I knew that I could learn only German there. I and my friends, who were ardent to learn, and poor, asked a research student in the school of foreign languages to teach us beginning French. After that I learned French by myself, but since I could learn French and German in the meteorological room of the corps, I could read them easily when I went to Utsunomiya. I knew that it is necessary to learn Latin, Italian, and Spanish languages in order to study the taxonomy of ants and wasps. All older European literature was written in Latin, and Latin and Greek are often used in scientific names. When I started the taxonomy of wasps in Taiwan and middle Asia, I had to read papers written by Portuguese and Russian workers. If I neglected them, my papers would be useless. So, I learned them by myself. I also learned Dutch which is like a half-blood between German and English, because I had already been interested in languages themselves. Scientists in most countries seem to like foreign men who can understand their own languages, and sent many reprints written in their languages to me. However, I often forget Russian because it is pretty different from the other European languages. These are my experiences for men who are going to study taxonomy.

I was born in the same year as Dr. Yasumatsu [1908] (His early death is very regrettable.) Now [1986] I am 78 years old. I am just an old man in Mishima [in Shizuoka]. Only a printer and mail clerks know me well (more than 100 letters come to me every year from around the world). My clothes are always poor, and my shoes are canvas ones. I wear a hat to protect my head when I fall down. One day in last summer, on the way back home from a hospital, I was eating Japanese noodles in a railway station at night. A young man with a big rucksack who looked like an American came to the station, and began to eat noodles next to me. I asked him whether he was going to Mt. Fuji, because he looked like a veteran mountain climber. People in the station were very surprised and looked at me because a poor old country man spoke English. He was glad to know that I could speak English, and asked me which bus he should take to go to the Hakone mountains. After I asked him to speak slowly, I guided him to the bus stop, talking with him, told him the time of departure and the time time required for the trip, and said good-bye. Everyone on the street we walked along looked at us with surprise. This was the first time that the people of Mishima paid much attention to me.

My recollections are already fairly long. I omitted all my sad childhood memories from these recollections. My mother raised me under awful difficulties. (She was trained in the manner of "Oshin" [the title and heroine's name of a famous Japanese TV drama] when she was a child.) My sisters were apprenticed before they finished their elementary school. My brother died because of malnutrition. My father continued mistreating my poor mother. I swore that I would never become a man like my father. I was disgraced numerous times in my elementary school because I was poor. I am sure that I can write a literary work about these memories, but I omitted them because the readers of this journal would have nothing to do with them.

Now I am putting my pen on the desk, and this manuscript is finished.



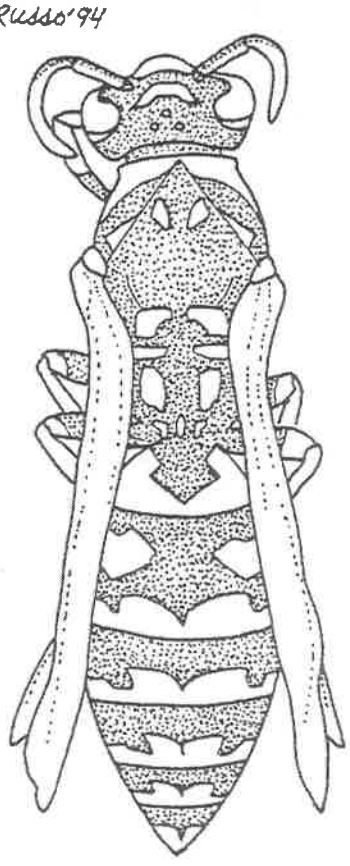
Celonites octoannulatus Kuzn., female (Vespidae), Turkestan

DATE OF PUBLICATION: JOURNAL OF HYMENOPTERA RESEARCH

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.



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 cocoon, 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

Sceliphron sp." built on a cement wall.

Many thanks to D. Brothers, South Africa, for the identification of the reared mutillids (apparently the males I mailed him were received damaged in the mail from Brazil to South Africa; all the mutillid specimens reared were retained in his collection). My appreciation to D. Quintero A. for much encouragement, during his September 1994 visit to Acre, to write the present note and for revising, preparing, and mailing the final draft for publication.

Literature cited

Morato, E. F., 1993. Efeitos da fragmentação florestal sobre vespas e abelhas solitárias em uma área da Amazônia Central. Dissertação (Thesis) Masters, Universidade Federal Viçosa, Viçosa, 105 pp.

Cambra T., R. and D. Quintero A., 1992. Velvet ants of Panama: Distribution and systematics (Hymenoptera: Mutillidae), pp. 459–478. *In*: Quintero, D. & A. Aiello (eds.). Insects of Panama and Mesoamerica: Selected studies. Oxford University Press.

A Parasitoid of *Trigonopsis richardsi* Vardy (Sphecidae)

by

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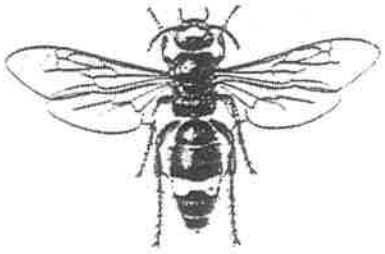
I found a nest of *Trigonopsis richardsi* Vardy in Ecuador (Morona-Santiago, Rio Upano near Sucua, 700m) attached to the leaf of a plant growing on a rock face. It consisted of six mud cells from which I reared a female *T. richardsi* and two females of a pteromalid which Dr. Z. Boucek has kindly identified as an *Epistenia* sp. The parasitoid is 7mm long and quite robust: at first sight it looks like a chrysidid.



Scolia vittifrons Sichel, female (Scoliidae), Thailand.

Corrections to "Phylogenetic Implications of the Mesofurca and Mesopostnotum in Hymenoptera"

(Heraty, Woolley and Darling, Journal of Hymenoptera Research 3: 241–277).

I need to humble myself and point out an error in this recent manuscript, which involves synapomorphies of Apiformes and Apiformes + Spheciformes. The text is correct but the illustration is wrong. On page 277, figure 56: Character 2:6 and 11:1 for Spheciformes and Apiformes should be switched (2:6 [separation of the axillary lever from the mesopostnotum] is a synapomorphy of Apiformes and 11:1 [fusion of the meso- and metafurca] is a synapomorphy of Apiformes + Spheciformes). Other minor errors: in Appendix 2 and figure 46, Larridae should read Crabronidae, *sensu* Finnamore (1993, Hymenoptera of the World); and in Table 2 and Appendix 2, Alloxystidae should be replaced by Charipidae.

A copy of the revised cladogram for Ichneumonoidea and Aculeata is given in Figure 1. Characters are discussed in the paper, but for quick reference the numbers refer to the axillary lever [2:1, present and inflected medially; 2:4, reduced and broad; 2:5, inflected and appressed against second phragma; 2:6, lever separated as an independent sclerite], the second dorsal diagonal muscle and associated laterophragmal lobe [4:1, absent], the pseudophragma [6:0, absent; 6:1, present], the furcal–basalare muscle [9:0, absent; 9:1, present], the lateral arms of the meso– and metafurca [11:0, separated and connected by interfurcal muscle; 11:1, fused and muscle absent], and the extension for the furcal depressor of the trochanter [12:0, absent; 12:1, present and arising from lateral arms; 12:2, present and arising from furcal bridge]. Solid circles are unique apomorphies; shaded circles indicate convergence; open circle indicates possible reversal. Species representing 30 genera and 25 families of Aculeata were examined.

The axillary lever is fused with the mesopostnotum in most Hymenoptera and was found to be an independent, articulating sclerite [2:6] only in the six families of Apiformes sampled. This character state was not a new discovery, as it was first pointed out by Snodgrass (1942) in his figure depicting the evolutionary history of the axillary lever in Apoidea. An elongate and appressed axillary lever is found in almost all Vespoidea and Apoidea; a similar state in some Ichneumonidae is probably convergent. Among the other characters, 2:4 and 12:1 support a closer relationship between Cleptinae and Chrysidinae, Amiseginae retains the plesiomorphic state for both characters. Extensions of the furcal bridge [12:2] are found in Sapygidae, Sierolomorphidae, Pompilidae, Scoliidae and Vespidae. Unless it is an ancestral state, Rasnitsyn's 1988 hypothesis for Vespoidea requires five independent derivations; hypotheses presented by Königsmann (1977) or Brothers and Carpenter (1993) require at least four independent derivations of this character (both decreases are based on accepting Scoliidae + Vespidae). Other changes within Vespoidea (2:1, 2:4 and 9:1) are probably autapomorphic. Although the number of aculeates sampled were relatively few, I hope these characters systems and their suggested distribution among taxa are interesting enough to warrant more intensive exploration.

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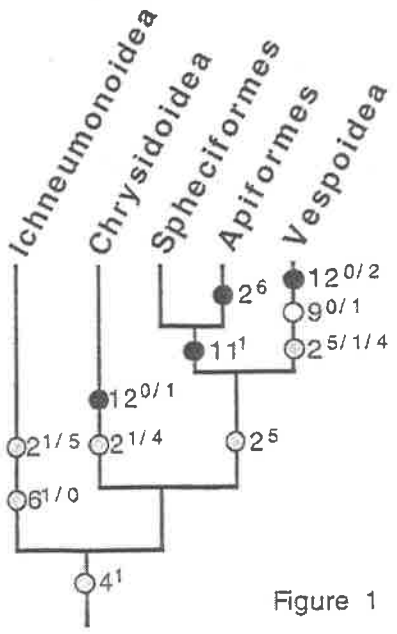

Figure 1

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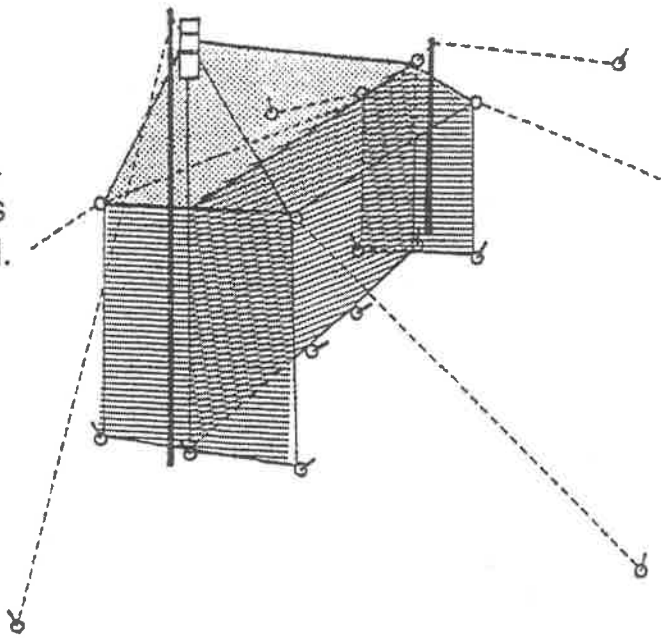

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TECHNIQUES

Vardy's Chloroform Gun Revisited

by

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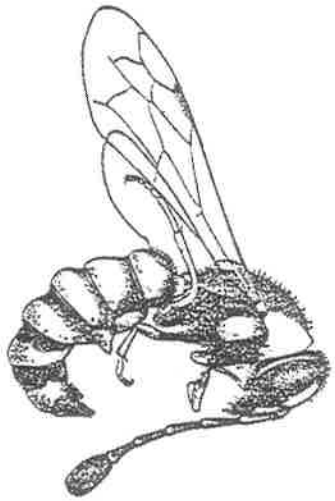
How can Amarante (**Sphecos** 27:15) justify publishing comments on the "Chloroform Gun" technique at all, when he admits that he didn't try it properly? It is a great pity that his remarks may well discourage other collectors from trying it. In the original article (**Sphecos** 1988, no. 17: 17-18) it is clearly stated that "there is no good substitute for chloroform" and "even when using a coarse needle, it is surprising how little chloroform is used up". The first statement is based on trials with quite a number of more-or-less volatile organic liquids, including ethyl acetate. As for Amarante's complaint about not being able to hit very fast-flying insects with it, two points arise: firstly whether it is possible to hit a fast-moving object depends also on the speed and accuracy of the operator (in fact it is possible to attain a high degree of skill in a short time); secondly, the fact that the range of the technique is up to 6 metres enables one to use it effectively in cases where a closer approach would cause the target to fly away (fast or otherwise) – insects simply don't anticipate being hit from that range. I hope that a fair and reasonably comprehensive trial will form the basis of any future comments.



Masaris carli von Schulthess, male (Vespidae), Turkestan.

COLLECTING REPORTS

VISITING MADAGASCAR

by

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

My visit to Madagascar in March and April 1994 was made possible through a grant from the National Science Foundation for a revision of the Afrotropical *Tachysphex*, my next major research project. I had the privilege of being accompanied by Sandro Mochi (in March) and Marius Wasbauer (for the whole time). Alain Pauly kindly offered to guide us throughout the island and provided his four wheel drive Toyota pickup for rent. For those who do not know him, Alain is a Belgian apidologist, now a resident of Madagascar and owner of a beach resort in Foulpointe, on the Indian Ocean coast. He knows the country well and is familiar with the Malagasy Hymenoptera and good collecting sites. Unfortunately, he was forced to abandon the expedition just after 3 weeks, but his driver Theodore and the technician Realen stayed with us to the end.

The expedition had a difficult beginning. The cyclone Geralda that hit the island in January destroyed the railroad connection between the capital and Tamatave, the country's main port. Severe fuel shortages resulted, with immense lines of cars waiting at the gas stations. Alain had to spend many hours at various offices in Antananarivo for several consecutive days in order to get a permit to buy extra diesel fuel. The permit indicated that the fuel could be purchased at the Tamatave refinery, 300km away, but fortunately close to Alain's hotel and his car. We went to Foulpointe (the hotel's location) in a rented car, and were hit by another cyclone on the way. I was sitting on the open truck's platform and it was like taking a shower in my own bathroom (although I usually undress for a shower). A lot of water per square meter per second, indeed. Well, we finally arrived at Tamatave, and Alain drove to the refinery at 4 AM, in order to beat the lines. When they opened at 8, he learned that he was waiting at the wrong gate because the guard on duty had misinformed him. When he finally reached the right gate, they refused to let him in because he had no fire extinguisher (after all, you do not enter a refinery without one). He had to run back, borrow one from another waiting driver (for money, of course) and finally we had two barrels of diesel and our trip began.

Madagascar is a country where habitat destruction has reached astronomical proportions. While driving from Antananarivo to Tamatave, we saw *Eucalyptus* plantations almost exclusively at first, and later areas covered with *Ravinala*. Although a native plant, this fan-shaped tree invades deforested areas and prohibits regeneration of the original forest. The road from Antananarivo to Mahajanga (on the west coast), the expedition's last part, was even more depressing: mile after mile of wasteland with meager grasses and intense erosion. Reforestation programs, implemented during the first 10 years or so after independence (in 1960), were abandoned subsequently. Grass fires, started systematically every year, do not help the situation. By thoughtlessly converting its natural habitats into a wasteland, the nation is certainly jeopardizing its own future (just like Haiti did).

In spite of this grim general outlook, nature has survived in many areas. First, there is a system of national parks, natural reserves, and privately owned reserves. Second, the destruction is less severe in the south, with its unique xerophilous vegetation (some 95% of plant species in southern Madagascar are endemic to that area). With some guidance, some effort, or a share of good luck, a wasp collector can find excellent sites there (fortunately, no rice paddies in the south).

Madagascar is a poor country and suffering from a deep economic and hence political crisis. Begging is common in the cities, especially around hotels and restaurants frequented by the vazaha (people of European descent). The government is blaming the foreigners for the economic disaster, with newspaper articles accusing foreigners of all possible misdeeds ("watch for suspect activities"). We learned that some resident whites were arrested, apparently as scapegoats. The capital and larger cities are reported as not being safe at night (but what big city is?). We did not encounter any security problem, but we followed Alain's advice and used taxis when going to and from restaurants after the sunset.

Collecting in national parks and na-

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

of the Fiherenana River, on the way to Ifaty. Ifaty itself was very dry, although it was excellent for other collectors. The best place, however, was a private arboretum some 12km SE of Toliara, owned by Mr. Petignat, a Swiss expatriate who describes himself as an anarchist. He says he comes from the Swiss Jura, an area with a tradition of anarchism ("you know, Bakunin lived there, and he was the only one to oppose Marx at the London Congress"). An unexpected topic for the tropics.

10. Berenty Nature Reserve (southern tip of the island), owned by Monsieur Jean de Holme, a proprietor of extensive sisal plantations and several hotels. He generously allowed us to use the science lodge on the reserve free of charge. We collected at the river bank and also on the unused roads in the sisal plantations. Overgrown with flowering plants, they were teaming with insects, whereas the nearby remnants of the natural dry forest looked rather lifeless, paradoxically.

11. Amborovy, some 12km north of Mahajanga, a sandy area close at the Mozambique Channel (northwestern coast). Most of the sand was rather sterile, but a few areas were excellent, and we also found another *Zizyphus* tree in flower.

A hint on our airplane fare may be useful. A regular round trip ticket from San Francisco to Antananarivo is close to $4,000, but we found two agencies that were charging about $2,000. One is Avia Travel in San Francisco (415-668-0964), the other is Cortez Travel near Los Angeles (619-755-5136).

Also, for the first time in my life I was using a Global Positioning System to determine each locality's longitude and latitude. My instrument, a product of the Magellan company worked very well, and the company offered an unsolicited free upgrade after I returned. The accuracy is indeed amazing, up to thirty or so meters. The travel guide on Madagascar that is a part of the Lonely Planet series, is a must for visitors.

The collections were very satisfactory, in spite of all the hardships, and all three of us went home with plenty of wasps. I brought back some 2,500 specimens, of which over 500 are *Tachysphex* (but Marius caught some 65,000 insects using his ten Malaise traps). I already understand most of the species of *Tachysphex* described from Madagascar by de Saussure (1892) and Arnold (1945). The most unpleasant was a discovery of a new *Gastrosericus*. My revision of that genus was accepted for publication as a CAS Memoir more than two years ago, but it has been sitting and waiting all that time. Now I have to add one more species description, complete new illustrations, redo the key and the cladistic analysis, upgrade several species diagnoses, update the English and the French abstract, and add a new name to the Index. Damn it.

A wasp collector working in Madagascar must sooner or later come across Andre Seyrig's name. We met people who knew him or of him. According to what we heard, he started his career in Madagascar as a simple mine worker and ended as the mine director, all the way to the top. He was a dedicated naturalist, published a well known monograph of Madagascan Ichneumonidae and collected the sphecids that became the basis of George Arnold's (1945) monograph. He also was a keen plant collector, and the endemic plant genus *Seyrigia* (a member of Cucurbitaceae with five species) is named after him. He was arrested by the French colonial authorities in 1942 and died in prison in Antananarivo under mysterious circumstances. Some of our sources told us that the had been accused of spying for Germans (he was of Alsatian origin, just like Marius). Others supposed that he paid with his life for being de Gaulle's supporter and against the Vichy government. In any case, he was an unusual, very able individual, one of those who built la grandeur de la France. What a pity that no biography of him has ever been published. Couldn't one of our French colleagues fill that gap?

Collecting in China and Hong Kong

by
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This June and July I went as a visitor to P.R. China and Hong Kong and tried to do some wasp collecting. China has lots of potential faunas but the infrastructural and societal constraints make collecting difficult. If one is to go officially, the paper trail will almost kill you (not to mention the budgetary constraints of often having to take along an official entourage). Even then the local bureaucracy can often kill an expedition (if one does not believe this, then read "Living Treasures, An Odyssey Through China's Extraordinary Nature Reserves" by Tang Xiyang, Bantam Books [1987]). It is of course possible with solid local collaborator support to have a great expedition to one or a few local areas, but for most of us who are generalist collectors surveying an area this might not fit our goals. Hong Kong, on the other hand, is just the opposite. There are no bureaucratic rules whatsoever. I heartily recommend making Hong Kong a highlight of one's adventures in Asia. Although it is small, it is extraordinarily diverse and has vast (yes vast) areas of undeveloped and empty (devoid of people) reserves. Hong Kong people are the ultimate urbanites and squatting simply is not a viable lifestyle and is unknown. One can easily get to these wild areas by bus or taxi and then get around by foot, later to return to a well stocked air conditioned lab to examine the collected material. This convenience is especially appreciated by molecular hymenopterists who need freezers, dry ice, dependable electricity, etc.

That said, I went to China and Hong Kong without an official permit and just collected as was possible. Collecting in such a fashion in China is also difficult as the infrastructure makes it hard to get to collecting locations. One cannot rent a car in China, and busses and local transport are restricted mainly to the larger cities and towns. Taxis can get expensive. And, then again, you must know where to go and be able to communicate with the driver. My preferred mode of transport was the bicycle, a vehicle which allows immense freedom on a micro scale. My favorite collecting place was Yunxi bamboo forest, an area famous for immense bamboos and located 20 km from Hangzhou, Zhejiang Province. There I collected several mutillid wasps, *Bombus*, *Pachycondyla*, and two of what appeared at a distance of 50m to be hummingbirds cruising humus heaps. After snaring these with my trusty 12' collapsible net, they turned out to be female *Vespa mandarinia*, both taken June 22. Believe it or not, another fine collecting place is the Great Wall north of Beijing. This structure goes through mountainous and wild areas that can he accessed easily by bus and then simply

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

1962, Kurczewski and Snyder 1964);

(5) *Ammophila harti* (Fernald) and *Bembix pruinosa* Fox nesting in small dunes within large, artificially produced sand blowouts (see Evans 1957, 1959, Hager and Kurczewski 1986);

(6) *Tachysphex pompiliformis* (Panzer) and *T. tarsatus* (Say), both in the *Pompiliformis* Species Group (Pulawski 1988), occurring in the same region and exhibiting similar nesting behavior (see Kurczewski and O'Brien 1988, Kurczewski 1991). *Tachysphex tarsatus* was common at lower elevations in the Fort Drum area while *T. pompiliformis* was found in the more forested Adirondack foothills. However, I have collected and observed *T. tarsatus* in the Adirondacks near Raquette Lake (Hamilton County). In Michigan, *T. pompiliformis* is more abundant in the Upper Peninsula while *T. tarsatus* is more widespread in the Lower Peninsula (Pulawski 1988, personal observation);

(7) Only one species in the *Terminatus* Species Group (Pulawski 1988), *T. terminatus*, occurring in the Black River Valley south of Fort Drum. *Tachysphex similis* Rohwer, also in the group, was not found in this region. Both species are common and widespread in the United States and southern Canada east of the Rocky Mountains (Pulawski 1988). In my opinion, *T. similis* is a more lowland species while *T. terminatus*, abundant also at low elevations, inhabits highlands and submontane areas as well. This generalization is, more or less, borne out by examining the collection localities of the two species as given by Pulawski (1988). In New York State *T. similis* is strictly psammophilous occurring along the Lake Ontario Plain, on Long Island, in the Lower Hudson Valley and in low elevational areas near Oneida Lake and north of the Finger Lakes. *Tachysphex terminatus* is found in these areas as well as in coarse-textured glacial till at the edges of kames and drumlins, sometimes at higher elevations (personal observation);

(8) *Plenoculus davisi* Fox females provisioning with mostly immature, small green mirids (see Evans 1961, Kurczewski 1968); and,

(9) *Nysson daeckei* Viereck females searching for and remaining near temporarily closed nests of *Gorytes canaliculatus* Packard, then digging into the closures when the latter females are absent from the nesting area (see Evans 1966).

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New Mexico, Arizona, and Utah
by
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1994

Nancy and I took a 3 week vacation in August. I wanted to show her some of the wonders of the southwest, we wanted to examine areas in the southwest for possible retirment living, and of course, we wanted to collect wasps, particularly *Ammophila*. We flew to Albuquerque, New Mexico, rented a car, and drove west to Acoma Pueblo where we toured this old "sky city". We camped that afternoon at El Morro National Monument. El Morro is famous for all the inscriptions carved into the bluff by early explorers, many of whom were Spaniards. We visited nearby Zuni and then the next day headed south toward Silver City through the Mogollon Rim country of New Mexico. A few miles south of Quemado we collected on flowering *Clematis*, a plant that we would see in bloom commonly throughout our trip. We then took a side road up to the ghost town of Mogollon. *Amophila zanthoptera* and *procera* were taken on *Clematis* which grew weed-like at the edge of the parking lot. We managed to get only two *zanthoptera* before a hellacious thunderstorm unleashed torrents of rain. This large, showy species of *Ammophila* has a disjunct distribution. It occurs in Mexico and Guatemala, and is recorded also from the Mogollon Rim country of Arizona. Our Mogollon collection represents the first record of *zanthoptera* from New Mexico. We arrived in Silver City late in the afternoon and spent the night there in the old hotel. We had an excellent dinner at the Black Cactus, possibly the best eatery in town. The next day we headed southwest to Lordsburg and then west on interstate 10 until we reached the turnoff to Animas, road 338.

Road 338 goes south almost to the Mexican border, and some miles south of Animas it becomes a dirt road. I

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

(2000 years). It is well worth seeing if you are in the area. Nancy found *Ammophila* here and managed to outcollect the master! Species taken included *azteca, breviceps, cleopatra, juncea* and *unita*. That night we camped at Buckboard campground in the Abajo Mountains west of Monticello. We were fairly high because quaking aspen were common. In the meadows we took *Ammophila azteca* and *procera*. It is well known that *Ammophila* females cannot sting a person, and I normally remove them from my net with my fingers. Apparently the sting is not sharp enough to pierce human skin. But I was stung by one of the *procera* females, these being among the largest members of the genus. The pain was minimal and of short duration, but I will handle *procera* females more cautiously in the future. The *procera* were noteworthy because of the very noticable odor emitted when handled. These chemicals are secreted by mandibular glands (see Duffield, Shamim, Wheeler and Menke, 1981, Comp. Biochem. Physiol. 70B:317-318).

From Monticello we headed eastward toward Durango, Colorado so that we could take in the narrow gauge railroad and its steam locomotives. After an hour or so of locomotive watching, we headed south to Aztec, New Mexico where my son Kurt lives. He had just completed hiking the Pacific Crest Trail in Oregon, roughly 500 miles, and we wanted to hear about his trip. Kurt lives on the bank of the Animas River, a really pretty and out of the way place. It is a short walk from his house to Aztec Ruins Nat. Mon., so we examined them. We also collected *Ammophila azteca* in Kurt's backyard, a species whose name compliments the locality. We continued on our way back to Albuquerque by traveling eastward toward Chama, New Mexico, home of the other remaining segment of the former Denver and Rio Grande narrow gauge railroad. In Chama we spent a couple of hours wandering about the locomotive shop and yards before heading south. When we reached the Los Alamos area, we headed west toward Jemez Springs, spending a very enjoyable night at a new inn that had a hot tub, the Jemez River Bed and Breakfast Inn. It's a great place to relax. The next day we were back in Albuquerque. We again visited Old Town and discovered the American International Rattlesnake Museum. The owner has living examples of all rattlesnake species plus a few look-a-likes. Quite a display. Finally we had an early morning preflight breakfast at Albuquerque's famous *Frontier Restaurant*; nothing quite like their breakfast burritos with eggs, green chile, etc! All in all, we had a great trip, and with a great house awaiting us in Bisbee, it is going to be a long two years until my retirement.

Postscript: Nancy spent a week at our new Bisbee home in October. She collected *Ammophila hermosa* and *breviceps* in our own yard. Whoopie!

MUSEUM/COLLECTION NEWS

The Sphecidae in the Collection of Hymenoptera of the Museu de Zoologia da Universidade de São Paulo

by

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The Hymenoptera collection of the Museu de Zoologia contains an estimated 300,000 specimens, with approximately 7,200 examples of Sphecidae. The collection, established Sept. 15, 1894, is housed in the Museu Paulista. Formerly the Museu Paulista was a natural history and historical museum, containing biological, anthropological and historical collections. In this initial period much of the insect material was composed of collections made by Hermann Lüderwaldt, Ernst Garbe, Curt Schrottky, Adolfo Hempel, J. Pinto da Fonseca and Hermann von Ihering. It was in those nascent times that the Hymenoptera collection had one of its most productive phases. Hermann von Ihering and Hermann Lüderwaldt conducted and managed many transactions with other institutions and collectors, involving exchanges, loans, and the acquisition of specimens. These transactions were very important and resulted in the addition of specimens identified by specialists such as A. Ducke, W. J. Fox, A. Handlirsch, F. F. Kohl, S. A. Rohwer, and R. E. Turner.

After von Ihering and Lüderwaldt, the Hymenoptera collection passed into a somewhat latent phase. In 1939 the collections of the Museu Paulista were split and the Departamento de Zoologia of the Secretary of Agriculture of the State of Sao Paulo was created to receive the zoological material. A new building was constructed to house the collections, and 30 years later the Departamento de Zoologia was incorporated into the University of São Paulo and was renamed the Museu de Zoologia. Except for some scanty efforts, the Sphecidae collection received little attention in these years, with no specialists engaged in its curation. However, the collection continued to receive additions from various sources, with Karol Lenko being an important contributor in the 1960s.

In the late 1970s, Carlos Roberto Brandão began a new phase in the study and curation of the Hymenoptera collection. During this period, Abraham Willink visited the collection, sorting much of the Sphecidae and some other Aculeata at least to genus. Also it should be mentioned that some material was identified by Arnold Menke, Richard Bohart, Jean Leclercq and Wojciech Pulawski, mainly as a result of revisionary studies.

In the middle of 1986, I started to work in the reorganization of the collection, and since then I have been identifying the specimens and accumulating literature about the family. Following the classification of Bohart & Menke (1976) I have sorted the material to family, subfamily and tribe, arranging the genera into these categories in alphabetical order. More recently I have been identifying material to species and sorting to morphospecies those groups for which there are no published systematic studies. I have much of this work done, with only the Philanthinae left to sort.

Below is a list of genera that are represented in our collection. To show the geographical distribution of our collection, I have listed the countries and the Brazilian states where the specimens were collected, providing a useful source information for these genera. Some of the genera listed below have never been reported for some places in South America, having been considered to be restricted to smaller geographical areas or to have disjunct distributions. I have already mentioned some of these new

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), Rlo 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.

Clitemnestra, Chi.
Gorytes, Europe.
Hoplisoides, BA, MG, MT, PA, RJ, SP, Sur.
Lestiphorus, RJ.
Liogorytes, Arg.
Megistommum, SP.
Neoplisus, MG, MT, RJ, SP.
Pseudoplisus, USA.
Ochleroptera, AP, MG, PI, RJ, SP, Per, Mex.
Sagenista, AM, AP, CE, ES, MG, PA, SP, Bol.
Sphecius, PA, Sur, USA.

Stizini
Bembecinus, AM, CE, GO, MG, MT, PA, PE, PI, RJ, SP, Esp.
Stizoides, USA.

Bembicini
Bembix, RR, SP, Arg, Chi, Sur, USA, Esp.
Bicyrtes, AC, AM, BA, CE, ES, GO, MA, MG, MT, PA, PE, RJ, RO, RS, SC, SP, Per, Sur, USA.
Editha, CE, ES, GO, MG, MT, SP.
Hemidula, Arg .
Microbembex, CE, ES, GO, MT, PA, PI, PR, RR, SP, Arg, Par, Sur, USA, Mex.
Rubrica, BA, CE, DF, ES, GO, MG, MS, MT, PA, PR, RJ, RR, RS, SC, SP.
Selman, ES.
Steniolia, USA.
Stictia, AM, GO, MG, MT, PA, RJ, RS, SP, Arg, Bol, Equ, Col, Sur, USA.
Trichostictia, RS, Per, Chi.
Zyzzyx, Chi.

Philanthinae

Philanthini
Philanthus, USA, Spain.
Trachypus, AM, BA, DF, GO, MG, PA, P1, RJ, SC, SP, Arg, USA, Europe.

Aphilanthopsini
Aphilanthops, USA.

Cercerini
Cerceris, AM, BA, CE, ES, GO, MG, MT, PA, PR, RJ, RR, SC, SP, Arg, Chi, Col, Gui, USA.

Tsuneki Holotypes at the National Museum of Natural History, Smithsonian Institution, Washington DC

by

Terry Nuhn and Arnold Menke

As reported in **Sphecos** 17:15 and 20:30, the late Katsuji Tsuneki sent most of his collection to the Smithsonian Institution in 1985, 1987 and 1990. A final shipment was received in late 1992. The collection included many holotypes of his new species, some of which came to the Smithsonian. The list below includes all of the Tsuneki wasp holotypes now housed in Washington DC. It does not include types of his Japanese species; they remain in Japan. Most of the types are Sphecidae, but species of Pompilidae, Tiphiidae, Scoliidae and Mutillidae are also represented.

Some of Tsuneki's sphecid types that were listed in his publications as in the "Coll. Tsuneki" were never received, and their location or disposition is unknown at present. At the end of the USNM type list we have appended a list of them. These are from papers that Tsuneki published in 1983 and 1984, and although the holotypes are listed as "Coll. Tsuneki", we suspect that they were returned to their Japanese collectors: Miss C. Nozaka, Mr. T. Murota, Mr. H. Kurokawa, Mr. T. Tano, and Mr. K. Sabi. We hope to clarify the location of these types in the future. At least one holotype was reported by Krombein and Pulawski (1994:83) as apparently lost in transit to Washington DC: *Tachysphex lagunaensis* Tsuneki, 1983 (Sphecidae). However, since none of the other types published in that paper came the to Smithsonian, it may be that *lagunaensis* is in the collection of Mr. Tano, the collector.

Some Tsuneki holotypes were returned to museums that lent him material for study: the California Academy of Sciences, San Francisco; The Natural History Museum, London; the Rijksmuseum van Natuurlijke Historie, Leiden; the Bishop Museum, Honolulu; the Hungarian Natural History Museum, Budapest; the Zoological Museum, Copenhagen, and others. We have not attempted to compile a list of Tsuneki types deposited in these institutions, but Pulawski has provided a list of types at the California Academy of Sciences (see p. 26).

Tsuneki holotypes in NMNH

MUTILLIDAE

aborlana, *Smicromyrme*, 1993
aponis, *Smicromyrme*, 1993
bidentata, *Smicromyrme*, 1993
bidentata, *Squamulotilla*, 1972
calacuasana, *Smicromyrme*, 1993
cavicola, *Smicromyrme*, 1993
cebuensis, *Squamulotilla*, 1993
hombuceiana, *Smicromyrme*, 1982
ilanica, *Smicromyrme*, 1972
kuanfuana, *Smicromyrme*, 1972
leytensis, *Trogaspidia*, 1993
mindanaonis, *Smicromyrme*, 1993
mindanaonis, spp. of *Squamulotilla teuta*, 1993
pacifica, *Trogaspidia*, 1972
palacala, *Smicromyrme*, 1993
puliensis, *Squamulotilla*, 1972
takasago, *Trogaspidia*, 1972
tridepressa, *Trogaspidia*, 1993
unidentata, *Squamulotilla*, 1972
yuliana, *Smicromyrme*, 1972
yuliensis, *Trogaspidia*, 1972
zamboangae, spp. of *Smicromyrme aborlana*, 1993

SCOLIIDAE

apakaensis, *Scolia*, 1972
bnun, *Scolia*, 1972
ilanensis, *Campsomeris*, 1972
koreana, ssp. of *Scolia wusheensis*, 1972
taiwana, *Campsomeris*, 1972
taiwana, *Scolia*, 1972
wusheensis, *Scolia*, 1972

TIPHIIDAE

alishana, *Mesa*, 1986
ami, *Tiphia*, 1986
atayal, spp. of *Tiphia ordinaria*, 1986
changi, *Tiphia*, 1986
chihpenchia, *Tiphia*, 1986
fenchihuensis, *Tiphia*, 1986
formosana, spp. of *Tiphia brevilineata*, 1986
formosensis, *Tiphia*, 1986
fortidentata, *Tiphia*, 1986
fukuii, *Tiphia*, 1986
hohrai, *Tiphia*, 1986
hokkien, *Tiphia*, 1986
horiana, *Tiphia*, 1986
ilanensis, *Tiphia*, 1986
komaii, *Tiphia*, 1986
lihyuehtana, *Tiphia*, 1986
pempuchiensis, *Tiphia*, 1986
puliensis, *Tiphia*, 1986
taipeiana, spp. of *Tiphia*

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
aboriana, 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

kentinensis, ssp. of *Cerceris umbinifera*, 1977
kiashi, ssp. of *Trypoxylon varipunctatum*, 1980
kitulgalaense, *Trypoxylon*, 1981
kizanensis, ssp. of *Ectemnius cavifrons*, 1972
koala, *Cerceris*, 1968
kodairai, *Tachysphex*, 1971
kolambuganum, *Trypoxylon*, 1980
koma, *Cerceris*, 1961
koreanum, *Trypoxylon*, 1956
koreanus, *Psen*, 1959
koryo, *Cerceris*, 1961
krombeini, *Ectemnius*, 1983
krombeini, *Lestica*, 1983
krombeini, *Trypoxylon*, 1979
kunzui, *Trypoxylon*, 1981
lamellatum, *Trypoxylon*, 1979
lanaonis, *Cerceris*, 1992
latiberbis, *Cerceris*, 1968
leytensis, *Cerceris*, 1992
licimum, *Trypoxylon*, 1981
lihyuetanus, *Tachysphex*, 1971
longicornis,*Psen*, 1967 (= *shukuzanus* nom. nov., Tsuneki, 1972)
luteocollare, *Trypoxylon*, 1980
luzonensis, *Carinostigmus*, 1992
maculicollis, *Dolichurus*, 1967
makiling, , *Liris*, 1983
makiling, *Trypoxylon*, 1980
mandibularis, *Psenulus*, 1959
manflava, *Cerceris*, 1971
melanocorne, *Trypoxylon*, 1979 (= *atricorne* nom. nov., Tsuneki, 1979)
membranaceum, *Trypoxylon*, 1979
menkei, *Trypoxylon*, 1979
mindanaonis, *Bembix*, 1992
mindanaonis, *Cerceris*, 1992
mindanaonis, *Dolichurus*, 1992
mindanaonis, *Ectemnius*, 1992
mindanaonis, *Polemistus*, 1992
mongolica, ssp. of *Cerceris pekingensis*, 1961
mongolicus, *Crabro*, 1958
mowchowense, *Trypoxylon*, 1981
murotai, *Ampulex*, 1973
murotai, *Rhopalum*, 1973
murotai, *Trypoxylon*, 1973
mushaense, *Rhopalum*, 1971
nambui, *Trypoxylon*, 1966
naranhun, *Tachysphex*, 1971
niger, *Polemistus*, 1992
nigricorne, *Trypoxylon*, 1979
nitidicorpus, *Crossocerus*, 1968
nonakai, *Tachysphex*, 1971
novaguineae, *Trypoxylon*, 1981
obliquum, ssp. of *Trypoxylon fronticorne*, 1981
okeanskayanum, *Trypoxylon*, 1981
outang, *Trypoxylon*, 1980
pacificus, *Bembecinus*, 1968
palawanensis, *Dolichurus*, 1992
palawanensis, *Polemistus*, 1992
panayanum, ssp. of *Trypoxylon compluvium*, 1980
pekingensis, *Cerceris*, 1961
pekingensis, *Tachysphex*, 1971
pempuchi, *Ectemnius*, 1971
pempuchi, *Sphex*, 1971
pempuchiensis, *Dolichurus*, 1972
pempuchiensis, ssp. of *Psenulus ornatus*, 1971
penpuchiensis, *Bembecinus*, 1968
philippinensis, *Bembecinus*, 1992
philippinensis, *Polemistus*, 1992
philippinica, ssp. of *Cerceris pictiventris*, 1992
philippinica, *Nitela*, 1992
philippinicus, *Hoplisoides*, 1992
philippinicus, *Lestiphorus*, 1992
planifrons, *Trypoxylon*, 1977
pleuralis, *Cerceris*, 1968
puliense, *Trypoxylon*, 1967
puliensis, *Dolichurus*, 1967
punctata, *Liris*, 1974
quadriceps, *Trypoxylon*, 1971
quadridentatus, *Polemistus*, 1992
quinquedentatus, *Crossocerus*, 1971
rekabum, *Trypoxylon*, 1980
rohweriellum, *Trypoxylon*, 1980
rufiventris, *Crossocerus*, 1968
rugosifrons, *Dolichurus*, 1992
samarianum, ssp. of *Trypoxylon compluvium*, 1980
samarense, *Trypoxylon*, 1980
sandakanum, *Trypoxylon*, 1980
sarum, *Trypoxylon*, 1980
semicompluvium, *Trypoxylon*, 1980
seoulensis, ssp. of *Cerceris quinquefasciata*, 1961
shirozui, *Rhopalum*, 1965
sibuyanense, *Trypoxylon*, 1980
siitanus, *Tachysphex*, 1971
simile, *Trypoxylon*, 1979
singaporense, *Trypoxylon*, 1979
singator, *Trypoxylon*, 1981
sinica, ssp. of *Cerceris sabulosa*, 1961
spangleri, *Trypoxylon*, 1979
spinicollum, *Rhopalum*, 1968
srilankum, *Trypoxylon*, 1979
suifuense, ssp. of *Trypoxylon clavicerum*, 1981
sungconis, *Carinostigmus*, 1992
sungconis, *Psenulus*, 1992
supraconica, *Cerceris*, 1961
surigaonis, ssp. of *Trypoxylon singorense*, 1980
surusumi, *Crossocerus*, 1971
szechuana, *Cerceris*, 1968
szechuen, *Trypoxylon*, 1981
taipingshanum, *Rhopalum*, 1968
taiwana, ssp. of *Ammophila clavus*, 1967
taiwana, *Lyroda*, 1967
taiwanum, ssp. of *Rhopalum succineicollare*, 1971
taiwanum, ssp. of *Sceliphron deforme*, 1971
taiwanum, ssp. of *Trypoxylon responsum*, 1967
taiwanus, *Crossocerus*, 1968
taiwanus, *Gorytes*, 1971
taiwanus, ssp. of *Motes larroides*, 1967
taiwanus, ssp. of *Passaloecus monilicornis*, 1967
takasago, ssp. of *Lyroda japonica*, 1967
takasago, ssp. of *Psen nitidus*, 1967
tanoi, *Crossocerus*, 1968
tanoi, *Eupliloides*, 1974
tanoi, *Psen*, 1967
tanoi, *Trypoxylon*, 1967
taros, *Trypoxylon*, 1980
tarsata, *Niwoh*, 1984
tienchiao, *Cerceris*, 1968
tiendang, *Cerceris*, 1961
tomi, *Trypoxylon*, 1979
toyensis, *Tachytes*, 1971
triangulum, *Trypoxylon*, 1981
tridentatus, *Polemistus*, 1992
trituberculatum, *Trypoxylon*, 1980
tsuifengensis, *Crossocerus*, 1968
tsuifenicus, *Ectemnius*, 1971
vallicola, *Trypoxylon*, 1971
varicolor, *Trypoxylon*, 1980
varipunctatum, *Trypoxylon*, 1980
venustum, *Trypoxylon*, 1977
vicicola, ssp. of *Cerceris specifica*, 1992
williamsi, *Trypoxylon*, 1980
windorum, *Cerceris*, 1968
wusheense, *Rhopalum*, 1973
wusheensis, ssp. of *Ammophila sickmanni*, 1967
yaeyamanus, ssp. of *Tachysphex bengalensis*, 1971
yunnanensis, *Cerceris*, 1968

Tsuneki holotypes (Sphecidae) not received by Smithsonian (collector's name in parentheses; type possibly returned to that person)

alaminos, *Lyroda*, 1983 (Kurokawa)
alticola, ssp. of *Cerceris specifica*, 1984 (Tano)
aponis, ssp. of *Cerceris sobo*, 1984 (Tano)
aponis, Crossocerus, 1984 (Murota)
apo, *Ectemnius*, 1984 (Murota)
aponis, *Larra*, 1983 (Murota)
aposanus, *Crossocerus*, 1984 (Tano)
baguione, *Pison*, 1983 (Nozaka)
baguione, *Rhopalum*, 1984 (Murota)

baguionis, *Liris*, 1983 (Murota)
bukidnon, *Ectemnius*, 1984 (Kurokawa)
bukidnon, *Rhopalum*, 1984 (Murota)
cavicola, *Liris*, 1983 (Murota)
comicum, *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 irridifrons*, 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

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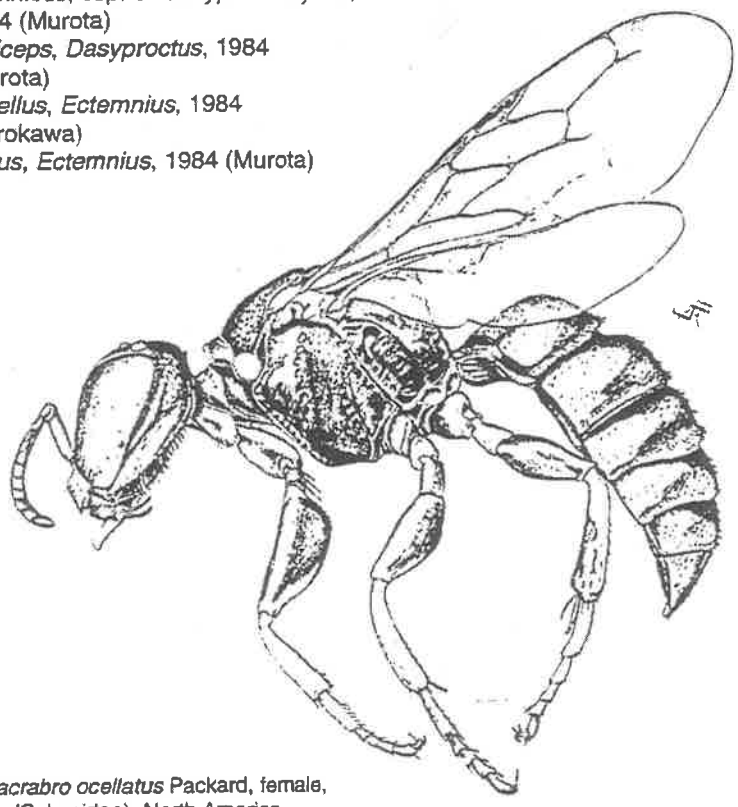
Dept. of Entomology, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118

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

that venoms are a mixture of complex, **fragile** (my emphasis) mixtures of enzymes and cofactors. True, except for the key word "fragile" – venom components are among the most stable and resistant of all proteins known to man. The argument that electroshock "destroys" the venom is even crazier. I and others routinely use isoelectrofocusing at 2000-4000 volts continuous for 12 hours to separate venom proteins. These components are not inactivated after this time! If we remove metal ion cofactors (calcium or zinc, usually), the proteins reactivate when they gain access to those ions (our bodies have plentiful levels of those elements which the proteins can use, should electroshock displace or inactivate the ionic cofactor). Finally, perhaps the shock alters our own body's membranes, thereby causing resistance to the venom. This is one of those hypotheses that cannot be falsified; but let us rely on the scientific results of experiments with animals that show no decreased morbidity or increased survival of envenomated and shocked animals (2-4), to indicate that this explanation is not realistic.

Interestingly, the only possibly plausible explanation for a beneficial action if, indeed, any did exist, for shock treatment of snake bites is not discussed – the placebo effect. It is well known that if one believes (s)he will get better, and if one trusts the treatment, then that person often **does** get better. That is why doctors prescribe "sugar pills". This is also why voodoo does work against believers – believers believe the curse, and often do fall sick or otherwise conform to the "hex" placed on them. Voodoo, of course, does not effect non–believers.

I will conclude by referring you to the accompanying article by Dr. Findlay Russell, probably the foremost expert in the world on snake bites (reprinted with his permission), and one simple observation – ever notice how false rumors and ideas require so little explanation to get started and propagated, and how debunking them takes much more effort, explanation, and repetition?

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Electroshock for Snakebite

by

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(dated 12 April 1987)

The electric shock treatment for snakebite, (as described in a letter to *The Lancet* July 26, 1986, p. 229), and subsequent comments in that fine journal, remind me that a colleague of a deceased relative of mine reported the successful treatment, without question, of 312 snakebite patients, and only 2 deaths using the following measures: Take of each of the following herbs, viz. – Zebe Giante, En haut abois, confied Caye, Petit Fongere, Zebe a Couresse, Zebe Dahl, Zebe a Colette, Chadron, Beni, Soumatie, Zimoron, Treffe, Charhentier, Zebe astro, Jarpanyai, and Balier doux, pound the same in a mortar, add thereto 3/4 oz. of alkali, 1/2 oz. of laudanum, put all in a quart bottle full of very strong spirits, shake and mix well, administer internally half a wineglassful according to condition and constitution of patient. Dress the wound twice a day and oftener, if necessary, with the same preparation (1).

Perhaps it would be wise to remind ourselves of a statement attributed to Fontana that "the physician who treats a patient with a drug and the patient recovers assumes that which is not necessarily true: that the patient recovered because of the drug, when in reality all that the physician has proved is that the drug did not kill the patient" (2).

There is nothing new about using electric shock for treating the bites and stings of venomous animals (3). In fact, the idea appeared in outdoor and sportsman's magazines in the United States in the 1920's, and during the age of "electrotherapeutics", electroshock was suggested for animal bites in detailing pamphlets. There are over 500 references to electrotherapy in 1899 in one source work alone (4). How many of these note electroshock for snakebite I do not know, but the instructions accompanying Kinne's Magneto-Electric Machine (5) mentions snakebite as a disease susceptible to electroshock, and I doubt that this is the only such reference during the 19th century.

As has been noted by Larrick et al., in 1978, 45% of the Waoroni Indians have been bitten by snakes, and 50% of the adult males will be bitten more than once (6). Those of us who have treated victims who have been bitten once or several times by the same species, or even genus, of snakes are well aware that in most cases subsequent bites on these persons tend to be less severe (2). It is distressing that Guderian et al., overlooked the fine study of Theakston et al., (7) who showed that of 223 serum samples taken from Waoroni Indians in 1981, 78% were positive by ELISA against the snake venoms of that area. On the basis of this fact alone, one might suggest that Guderian et al., were treating a highly selective group of (immune?) patients.

Further in this writer's experience in Ecuador, at least 30% of all crotalid bites on humans did not result in envenomation. That is, they were dry bites. In some parts of the world, at least 50% of bites by poisonous snakes are dry. This factor is seldom taken into account in evaluating therapeutic measures following bites by venomous snakes.

There are several additional distressing opinions in the letter to *The Lancet*, one of which is the statement that "venom (snake) has a short half–life..." Actually, snake venoms have about the longest "half–life" of any complex protein mixture known to man. Venoms from Crotalidae of the Klauber collection (1920–26) show little change in their LD50 after 60 years, and a sample of cobra venom sent from M. Phisalix to C. H. Pope, and now more than 63 years old, shows remarkably similar properties to the last sample supplied to me from the Haffkine Institute. I doubt that the argument to "shut–down local vessels by electrospasm may confine the venom locally long enough for it to become inactive", is consistent with the physical and chemical properties of the venom, nor our understanding of the physiopharmacological parameters of crotalid venom activity (8).

Although the relationship cannot yet be established, a recent case of myo-

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).

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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

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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.

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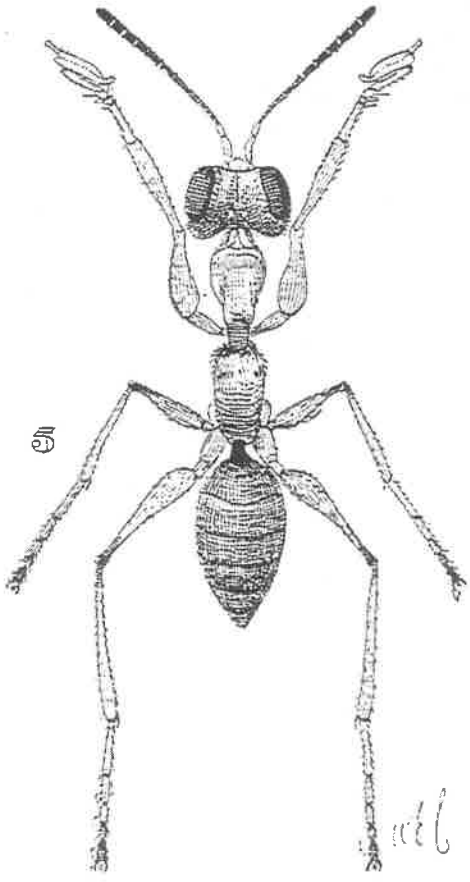

Gonatopus solitarius (Perkins), female (Dryinidae), North America.

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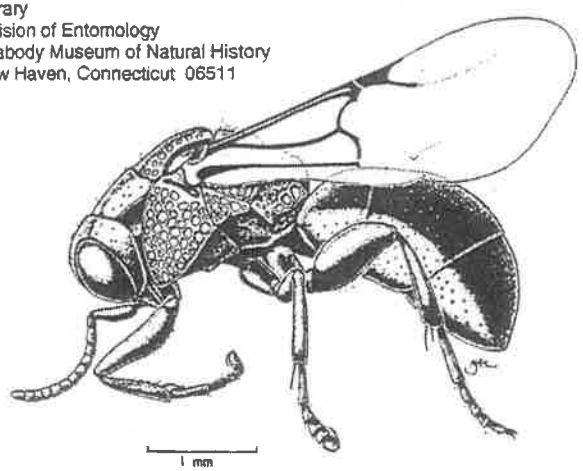

Muesebeckidium obsoletum (Say), female (Chrysididae), North America.